

**2012**

**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

May 18, 2012

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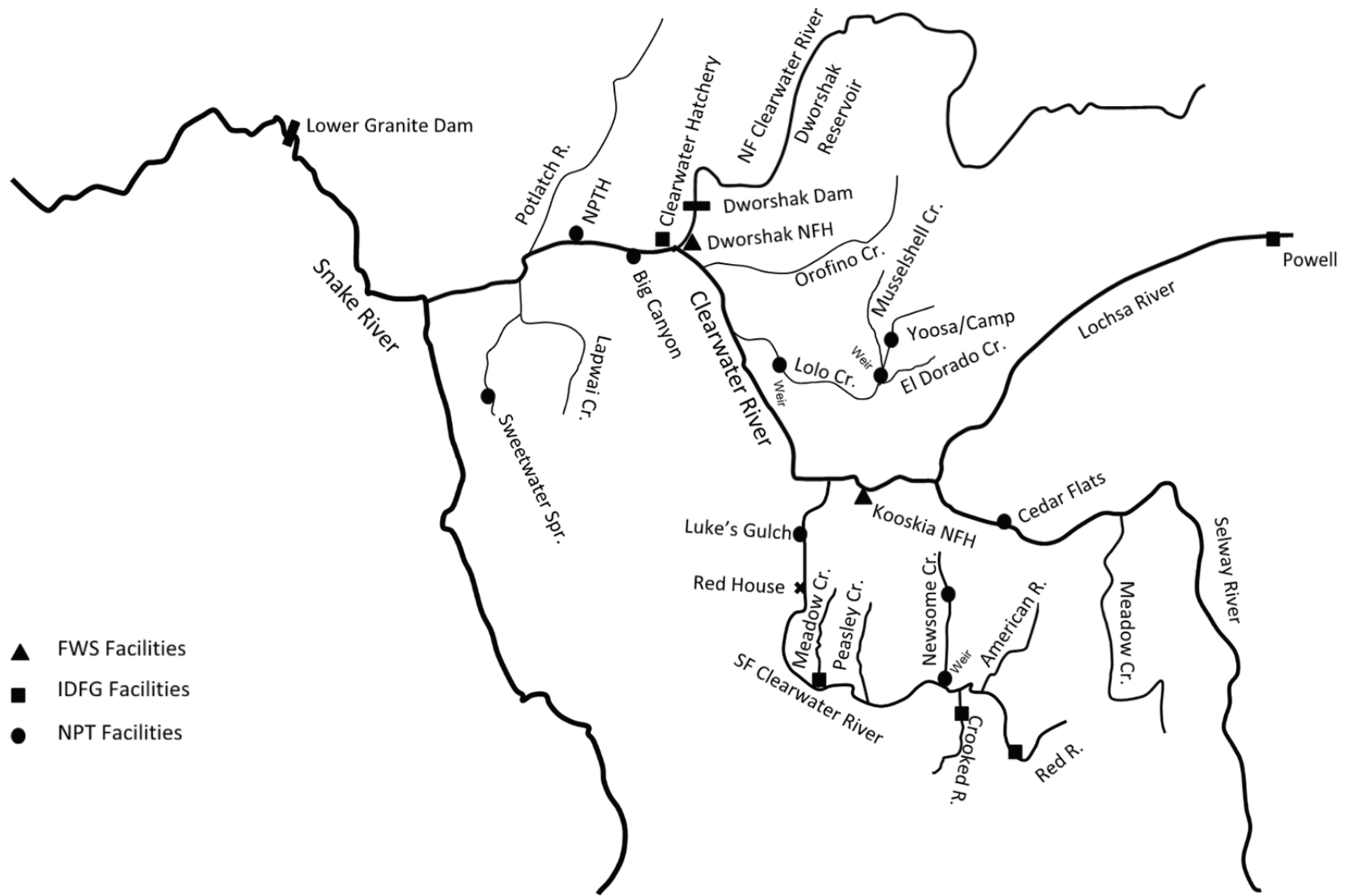


Figure 1. Clearwater River Basin and locations of FWS, IDFG, and NPT fish production facilities.

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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. Brood Year 2011 Steelhead****1.1.1. Dworshak –**

*The Dworshak hatchery collects broodstock to meet B-Run Steelhead production goals for the Dworshak Fish Hatchery, the Clearwater Fish Hatchery and the Magic Valley Hatchery (**Table 2**). Approximately 1,000-1,200 females are needed to provide the eggs for these hatcheries. Fish collections via the trap exceed these numbers to ensure adequate numbers of adults are available on spawning day. Additional factors influencing the number of fish trapped and spawned include; 1) the female to males sex ratio (~2.3:1) and target 1:1 spawning ratio, 2) the prevalence of IHNV in adults and culling rate variability based on the level of IHNV, and 3) overall egg quality. Any fish surplus to the spawning needs are returned to the Clearwater River so they're available for the fisheries. 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 fisheries. The principle is that the returning un-clipped adult steelhead will escape the sport fishery therefore return at a higher rate to tributaries, to hopefully spawn, thereby increasing natural production.*

- 1.1.1.1. Production status – As of January 1, 2012 there were a total of 2.18 million steelhead on station, averaging 140 to 185 mm total length, depending on take, 9.6 fpp. BY 11 STT were reared in 59 Burrows Ponds rather than the full 84 ponds to meet National Pollution Discharge Elimination System (NPDES) permit requirements. Sample counts are performed monthly on representative ponds. *Thomas Trock*
- Projected release – We are planning to release fish in mid-April, 2012. DNFH expects to release 1.2 million steelhead on-site and 900K off-site. The off-site release includes 200K un-clipped steelhead. Unclipped steelhead to Peasley Creek will be released in the South Fork at the Meadow Creek pullout in preparation for a new satellite/trapping facility. The pullout location will be used because the hauling trucks are too large to maneuver in the Meadow Creek release site. Average total length at

release is estimated at 200 mm (5.8 fpp). (**Table 1**) *Thomas Trock / Mark Drobish*

- 1.1.1.2. Fish health status – IHNV occurred at the 37.6% rate in the BY 2011 adults. Beginning in April, 2011, several tanks in the nursery from take 1 tested positive for IHNV and were destroyed. The fish that survived the nursery from take 1 and were ponded outside also broke with IHNV and were destroyed. As a result, no progeny from take one for BY 2011 were raised at Dworshak. Gas bubbles were seen in the gills of fish during the summer and early fall. No reuse was used during BY 11 STT rearing. The majority of ponds have received 1-2 formalin treatments since November 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. *Marilyn Blair*
- 1.1.1.3. M&E – Nine CWT groups of 20k each (see below) were tagged for system contribution and early return groups during marking operations in June – August 2011. Also 30,500 PIT tags will be inserted in January 2012; 1,500 for the Smolt Monitoring Program, 9,000 for CSS, and 20,000 for Dworshak evaluation. Prior to release 1,000 fish from each CWT-tagged pond are checked for tag retention (ex. BY10 = 99.85%). *Chris Peery / Carrie Bretz*
- 1.1.1.4. Remote PIT Tag Array Monitoring and Evaluations - The Nez Perce Tribe operates four remote Biomark PIT tag arrays in the Clearwater River Basin as part of the larger Integrated Status Effectiveness Monitoring Project (ISEMP) to monitor juvenile and adult salmon and steelhead abundance. These PIT tag arrays will be operated year round and are part of a long-term monitoring effort. Information about PIT tag recapture information can be viewed at ["www.ptoccentral.org/dbaccess/InStrmDtctn/InStrmDtctn\\_query.html"](http://www.ptoccentral.org/dbaccess/InStrmDtctn/InStrmDtctn_query.html). South Fork Clearwater and Lolo Creek PIT Arrays, Site code, and GPS locations include:
- *Site Code SC1 –South Fork Clearwater — N 46.13685, W 115.98091*
  - *Site Code SC2 –South Fork Clearwater — N 46.12749, W 115.9773*
  - *Site Code LC1 – Lolo Creek – N 46.294434, W 115.97612*
  - *Site Code LC2 – Lolo Creek - N 46.29042, W 115.93397*
- 1.1.1.5. Research Requests – FPC requested 1,500 steelhead be PIT tagged for the Smolt Monitoring Program. For 2012 releases 9,000 steelhead were PIT tagged for the Comparative Survival Study (CSS). *Chris Peery*

## 1.1.2. Clearwater –

*Original design memorandum shows the production for Clearwater Fish Hatchery may be as high as two million steelhead smolts. Historically, the steelhead smolt releases from Clearwater Fish Hatchery have ranged from approximately 600K to 1.04 million. Currently the release goal for Clearwater Fish Hatchery is 843,000 full term smolts (FTS). The reduction of FTS release number is from downstream*

*multiagency negotiations and insufficient water to rear fish in 28 one hundred foot sections of raceways. The adult return goal for the program is 14,000 steelhead.*

- 1.1.2.1. Production status / projected release - The estimated number of BY11 steelhead to be released in the spring of 2012 is 725,000. This includes 297,700 AD-clip, 124,300 AD/CWT, 118,800 No-clip/CWT and 184,500 No-clip into the lower SF Clearwater pursuant to the US v. Oregon 2008-2017 Management Agreement. No steelhead will be released into the Red River and Crooked River in 2012. Beginning BY11 all Peasley Creek releases were moved to Meadow Creek in preparation for a new satellite/trapping facility. IDFG will contact NPT (Sherman Sprague) to coordinate Newsome Creek releases. **(Table 1)** *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 1.1.2.2. Fish health status – Brood Year 2011 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 from females 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. Diagnostics on demand. Pre-liberation samples performed on 60 fish sample prior to release. Viral pathogens have not been detected in these fish. *Aeromonas hydrophila*, was detected during inspection sampling. Mortality and morbidity 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 moved outside, at the end of October and 2 weeks prior to release. Seven weeks after marking and just prior to release 300 fish are sampled to quality check adipose fin clips and coded wire tag retention. In February, 33,900 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. Therefore PIT tags are randomly separated by code with 70% of the tags representing the run-at-large migration group while the remaining 30% being default returned to the river during outmigration. PIT tags are representatively distributed across release groups in proportion to the release group size. *Jerry McGehee / Carl Stiefel*

SF Clearwater Localized Stock Evaluation- PIT tags will be used to evaluate the relative performance of South Fork Clearwater smolts (a localized stock) as well as Dworshak smolts released in the South Fork Clearwater River from Clearwater Fish Hatchery. Approximately 12,000 juveniles from each AD-clipped released group will be PIT tagged to evaluate SARs to Lower Granite Dam. In order to achieve this sample size



for Dworshak smolts, PIT-tagged smolts in the Meadow Creek and Red House Hole releases will be pooled together. The PIT-tagged fish intended for this evaluation are from the run-at-large juvenile migration group (see CSS above) which represents 70% of the total PIT-tagged fish in these groups. Managers have decided that beginning in release year 2012 all releases previously intended for Peasley Creek will occur at Meadow Creek as Meadow Creek was determined to be a location better suited for adult collection (**Table 1**). *Jerry McGehee / Carl Stiefel*

CWT Tag Retention- A 300 fish sample from raceways which are 100% CWT will be checked for tag retention approximately three-weeks post tagging. These retention checks will satisfy marking QC/QA needs as well as release reporting requirements. *Carl Stiefel*

- 1.1.2.4. Remote PIT Tag Array Monitoring and Evaluations – Information can be seen in section 1.1.1.4.

## **1.2. Brood Year 2012 Steelhead**

### **1.2.1. Dworshak**

- 1.2.1.1. Projected adult return – Based on average return rates, the predicted steelhead return to Dworshak NFH rack in 2011-2012 is sufficient to provide broodstock for all programs. We open the ladder to only capture what broodstock we need and we typically collect about 3,400 - 4,000 steelhead. *Chris Peery*
- 1.2.1.2. Ladder operation – The ladder was opened in the fall (2011) with collection targets by month (October 300 adults, November 150 adults, December 150 adults) for collection of early-return steelhead. This provided representation from October through December rather than collecting all of the fish in October as was previously done to represent the “early return” steelhead. During this period there were 1,191 early-run steelhead collected, 588 of which were held for spawning in the spring of 2012. The Idaho Fish Health Center lethally sampled 30 adult SST on six different occasions from October through December, 2011, quantifying the prevalence of IHNV. There were 161 carcasses given to the local food bank, all excess SST were returned to the main stem of the Clearwater River at the Hocus boat ramp upstream of the hatchery. Based on the steelhead returns we are planning on intermittent ladder operation in the winter and spring of 2012 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 approximately January 25, 2012 to begin the collection of mid and late returning steelhead. *Thomas Trock*
- 1.2.1.3. Adult fish health – 80 males were injected with the hormone GnRH $\alpha$  prior to spawning, using the implant form, under INAD. This was to insure that there were enough males that were ripe during the early spawns. Fish are

treated three times per week with formalin for fungus, under a veterinary prescription. At spawning, a minimum of 60 tissues samples will be collected and assayed for viruses, bacteria, and parasites. About 30% of ovarian fluid samples/at each take will be collected individually (not pooled) to assay for virus. In addition to samples taken during spawning, adults will also be sampled for IHNV as soon as possible as they return to Dworshak NFH throughout the adult run in order to obtain a better idea of the numbers and timing of returning adults that have IHNV in the river and the genotype of this virus. Beginning on 10/20/2011 for every 2 weeks tissues from 30 adults were sampled for IHNV. Positive detections to date include 6.7% positive for IHNV from samples collected on 2/1/11 and 3.3% positive from samples taken on 12/15/11. *Marilyn Blair*

- 1.2.1.4. Adult out-planting/markings – 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 be marked with left operculum v-notch. Any out-planting involving the NPT will be coordinated with Mike Key. *Carrie Bretz / Chris Peery*
- 1.2.1.5. Carcass disposition – This year the food bank will be utilized when possible. There have been no research groups to utilize the carcasses YTD. Regarding any fish not utilized by the public through the food bank, we will return these carcasses to the Clearwater River. Any fish that have been exposed to hormone treatments (GnRHa) will be disposed at the transfer station. In the spring, spawning efforts are with fresh fish collected via the Dworshak ladder, with the exception of some males that have been held over from previous collections, to better achieve the 1:1 male-female spawning ratio. Any males treated with formalin will be included in the group of fish to be disposed of in the Clearwater River. *Thomas Trock / Mark Drobish*
- 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. Genetic samples – DNA samples are collected from all spawned adults at the DNFH to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail)”
- 1.2.1.8. Spawning/egg take plans, mating protocol - Current plans are to take ~2.56 million eyed eggs for Dworshak, ~1.2 million green for Clearwater. Included in this number are ~300K eggs or more depending on availability of adults from the South Fork of the Clearwater River localized broodstock program. Dworshak will also take ~1.3 million green for Magic Valley. The number of eggs collected is based on historical adult survival, eye-up percentage, disease rates and smolt survival rates to meet smolt release targets. Broodstock collection is minimized to the extent possible. Eyed eggs in surplus of production needs are culled based on disease sampling and by eye-up percentages. Dworshak is cooperating with CRITFC and the Nez Perce Tribe in a Kelt Reconditioning Project. Additionally, the NPT will air-spawn 150 females in February of 2012.

The eggs expelled will be collected, stored and used by the project to supplement feeding for the reconditioned fish. *Thomas Trock/Scott Everett*

- 1.2.1.9. Juvenile Production - Incubation: Dworshak will incubate eggs from approximately 520 steelhead females for its program, 140 fall-return adults and 380 from winter and spring returns. After eye-up and enumeration, approximately 2.5 million eyed eggs will go into the Dworshak program. Dworshak will incubate up to 1.2 million green eggs for Clearwater Fish Hatchery. Once these fish have reached the eyed stage, they will be transferred to the Clearwater Fish Hatchery. *Thomas Trock*

Nursery Rearing: Dworshak will early-rear approximately 2.3 million steelhead in its nursery until the fish reach approximately 150 fpp during the spring and summer of 2012. *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, 2012. Up to 58 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 BY11 Coho. Fish will be moved from the nursery to the ponds using a Heathro Fish Pump. A marking trailer from Columbia River Fisheries Program Office will AD clip and CWT steelhead. The Burrows ponds will be initially stocked at approximately 140K 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. After the fish are moved from the nursery tanks, initial stocking will be in System I, also on reservoir water. This will be the third year of utilizing System I for extending the reservoir water usage to better manage against IHNV by delaying exposure to river water. Current plans are to utilize reservoir water in a single pass mode (no reuse). As density and flow levels increase in System I, the steelhead will be moved into Systems II and III using the Heathro Fish Pump in conjunction with the Vaki Micro Fish Counter to inventory these fish into ponds where they will remain until release. *Thomas Trock / Mark Drobish*

- 1.2.1.10. Juvenile Fish health - Upon ponding, juveniles will be monitored for viral and bacterial pathogens, and parasites. A 60 fish sample will be tested for viral, bacterial, and parasitic pathogens prior to release. *Marilyn Blair*
- 1.2.1.11. Planned juvenile marking & tagging, release sites – Tentative marking plans for BY12 steelhead at Dworshak NFH are found in **Table 3**. The number of BY12 steelhead to receive a CWT is tentatively set at 180,000. FWS is not planning to administer an LV fin clip to CWT steelhead in 2012. *Chris Peery*
- 1.2.1.12. Juvenile M&E - FWS will 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, and 20,000 for Dworshak evaluation.  
*Carrie Bretz / Chris Peery*

1.2.1.13. Research Requests –

- Matthew Campbell, IDFG requested fin clip samples from all adult steelhead spawned at Dworshak (for all programs). He is heading up the parentage-based genetic tagging program for IDFG. 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*
- NPT and CRITFC are also involved in kelt research and will be air spawning in conjunction with spawning efforts at DNFH. A total of 150 females will be air-spawned and retained until the spring of 2013 for assessing egg quality of reconditioned kelts. Assessing reproductive success in reconditioned kelts is a major goal of the project. Milt will be collected from 2 to 4 males during each day of air-spawning operations for the kelt project and motility assessed. A small number (approx. 200) eggs from each air-spawned female will be transported to UI, fertilized with milt from male with confirmed motility, and fixed 12 h later. Egg viability will be assessed as percentage of fixed eggs showing cleavage. An additional 150 steelhead kelts will be collected at Lower Granite Dam (LGR) and transferred to DNFH. Reconditioning experiments will be conducted on these fish from March through October at DNFH. Surviving LGR transferred kelts will be tagged and returned to the Snake River below LGR. *Scott Everett / Andrew Pierce*
- Idaho Department of Fish and Game requested about 5 gallons of steelhead eggs from Dworshak NFH to be used in capturing sturgeon for research purposes. Dworshak NFH will provide culled and green steelhead eggs in the course of steelhead spawning. Eggs will be disinfected with Iodophor prior to leaving the hatchery and will be picked up at the end of each spawning week by IDFG. *Brett Bowersox/Ray Jones*

1.2.1.14. 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 2012 for BY12 steelhead adult collection. The proposed operation is to close the trap April 10, after Chinook and Coho smolt releases, and bypass the water intake and Obermeyer weir during this usually high water period. 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 informed. *Chris Peery*
- 1.2.2.2. Adult handling/out-planting/markings - 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 out-planting will be loaded into NPT truck at time of sorting; NPT contact will be Mike Key for spring out-plants. Out-planted steelhead will be given a right operculum 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 – BY12 smolt release has been set at 843K including 333K for tribal supplementation **Table 3**. 1,206,000 green eggs are requested for Clearwater Hatchery. **Table 2**. All spawning will occur at DNFH. Our expected first spawn date for Clearwater Hatchery egg collection is March 13. 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 100 fish per pound. Each vat is loaded with approximately 45k swim-up fry. *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 1.2.3.2. SF Clearwater Broodstock - In the spring of 2012 managers will continue to create a locally adapted steelhead broodstock in the South Fork Clearwater River by assessing the feasibility of collecting, spawning, and rearing the progeny from B-Run steelhead returning to the South Fork of the Clearwater River. 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 a minimum of 50 pairs of adults for spawning.

- Clearwater Hatchery staff will operate transport trucks (two 1-ton transport trucks and an adult hauling tanker) to transport 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 at minimum, 210,000 FTS in three raceways for out-planting to Meadow Creek on the SF Clearwater River.
- Pending availability of adult pairs in the fishery, Clearwater staff will implement a strategy to increase production of SF origin smolts by whole raceway groups. Initial goal for increased SF production is 350,000 FTS. If adults are available, the entire Meadow Creek release (501,000 FTS) would consist of SF origin smolts.
- Approximately 12,000 juveniles from each group (SF stock, Dworshak stock) will be PIT tagged to evaluate SARs. Juveniles produced will maintain current marking strategy (Table 3). Managers have decided that these fish will be released at Meadow Creek beginning spring of 2012. (**Table 1**). *Jerry McGehee / Cassie Sundquist / Lars Alsager*

1.2.3.3. Magic Valley - 2,043,500 green eggs are requested for Magic Valley. (**Table 2**). Our expected first spawn date for Magic Valley is March 27. 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 Idaho Fish Health Center determines virus results. Each female will be tested for viral replicating agents. At that time, positive IHNV eggs will be destroyed and the negative eggs will be picked, enumerated, and shipped to Magic Valley. *Jerry McGehee / Cassie Sundquist / Lars Alsager*

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 30 to 45 days of liberation. No prophylactic treatments are planned at this time. Marking Plans for BY12 steelhead from Clearwater Hatchery are found in **Table 3**. As fish are moved outside, they receive ad-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 33,900 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 LSRCF. PIT tags will be distributed across release groups in proportion to the release group size.

*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 4,166 adults, specifically: 1,200 for Dworshak, 600 for Kooskia, 1,910 for Clearwater, 458 for NPTH. Additional details are listed in the pertinent sections below.*

### 2.1. Brood Year 2010 Spring Chinook

#### 2.1.1. Dworshak –

*Approximately 1,200 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 1.6 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, 2012, there were 1,046,192 BY10 spring Chinook averaging 29 fpp and 124 mm (4.9 inches) total length on station. At present, these fish are on schedule to meet the size-at-release requirements of 18–20 fish per pound. *Thomas Trock*
- 2.1.1.2. Projected release – In April 2012, approximately 1,045,000 spring Chinook will be forced released from raceways. Chinook will be released on two consecutive evenings from A and B banks in late March or early April with a number of environmental factors considered: flows, turbidity, and an increasing hydrograph to maximize survival during release and outmigration. *Thomas Trock (Table 4)*
- 2.1.1.3. Fish health – 28% of the adult SCS sampled were positive for IHNV. BY10 SCS have done well to date. Monthly monitoring samples for BKD are currently being taken. One fish only from one raceway was found positive for IHNV on Sept. 1, 2011. No other juveniles have tested positive to date. A pre-release exam of 60 fish will be sampled for viral and bacterial pathogens prior to release. *Marilyn Blair*
- 2.1.1.4. M&E - Approximately 125,000 Dworshak stock are marked with CWT for system contribution monitoring. Prior to release 500 marked fish from each coded-wire tag code are checked for tag retention (BY09 = 99.95 %). *Carrie Bretz / Ray Jones*
- 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).  
*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. An additional 200 broodstock are also collected (if available) to provide for the IDFG release of 235,000 smolts in Clear Creek.*

- 2.1.2.1. Production status - There are 626,324 Kooskia stock spring Chinook fry at Kooskia NFH weighing 23,229 lbs., 4.90 inches or 124 mm long, at 28.3 fish/lb. (fpp). The Burrows ponds were put on Clear Creek water October 24, 2011. Chinook will be split from Burrow's ponds into raceways in February, 2011 if densities warrant. *Kent Hills*
- 2.1.2.2. Projected release - KNFH will direct release an estimated total of 620,000 Spring Chinook at 18-25 fpp on or after the last week in March. (**Table 4**) *Kent Hills*
- 2.1.2.3. Fish health – 0.0% of adult SCS sampled were positive for IHNV. BY11 SCS have done very well to date. Monthly monitoring samples for BKD are currently being taken. A sample of 60 fish will be taken and assayed for virus and bacteria prior to release. *Marilyn Blair*
- 2.1.2.4. M&E – Approximately 100,000 Kooskia stock are marked with CWT for system contribution monitoring. Prior to release 500 marked fish from each mark group (tag code) are checked for tag retention (BY09 = 99 %). 15,000 Chinook will be PIT tagged for the 2012 release for juvenile and adult monitoring. Most of these PIT tags (15,000) will be requested to be handled in a monitoring mode at the dams with 1,000 in the default return to river mode. *Carrie Bretz*

### 2.1.3. Clearwater –

*Approximately 1,910 Chinook are needed for broodstock for the Clearwater Fish Hatchery spring Chinook salmon program. This number includes 894 for Powell, 1,014 for the SF program and also accounts for pre-spawning mortality. Current hatchery production goal is 2.135 million smolts. 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 BY10 spring Chinook smolts are for 2,182,000 at an expected 16-20 fish per pound (136,375 pounds of fish). Fish will be released from transportation trucks at designated release sites. The final release number is determined by subtracting monthly 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 with BY08 the Crooked River Spring Chinook release of 700K was transferred to Red River in preparation for the 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 the Hatchery Manager was comfortable for the fish to be safe and then release the same day. All production Chinook are Ad clipped. During the last week of March the NPT will transport approximately 400,000 smolts to the Selway River for release near the mouth of Meadow Creek. Selway transport should be coordinated with Steve Rodgers and Clear Creek release coordinated with Kent Hills. **(Table 4) Jerry McGehee / Cassie Sundquist / Lars Alsager**

2.1.3.2. Fish health – Brood Powell Spring Chinook: IHNV was detected in 0/90 of ovarian fluids (60 fish sampled) and 30 fish sampled with kidney/spleen tissues. ELISA sampling detected 1 High (0.4%) out of 209 fish sampled. Eggs from the female with high ELISA values were culled from the Clearwater Chinook salmon program. Pre-spawning mortality was at 40% due to a lightning strike that killed over 300 female adults.

Brood Year 2010 Powell: Pathogens have not been detected in these fish to date during routine sampling. Steatitis has been a problem causing some morbidity.

Brood Year 2010 S. F. Clearwater Spring Chinook: IHNV was detected in 0/60 of ovarian fluids 0/30 of the kidney/spleen tissue samples. ELISA sampling detected 22 Highs (5.9%), out of the 375 females sampled. Eggs from females with high ELISA values were culled from the Clearwater Chinook salmon program. Pre-spawning mortality was at 3.4 %.

Juvenile

- Rearing inspections – Quarterly inspections are performed by Eagle Fish Health Lab. No pathogens detected in regular monthly inspections by hatchery crew. Pre-liberation inspections – These inspections are performed by Eagle Fish Health Lab within 30 to 45 days of release.

2.1.3.3. Quarterly inspections. Pre-liberation prior to release at Satellites (60 fish samples viral replicating agents, *Renibacterium salmoninarum*, furunculosis, and WD). *Doug Munson*

2.1.3.4. 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 moved outside, at the end of October, and two weeks prior to out-planting. Seven weeks after marking and just prior to release 300 fish are sampled to quality check Ad clips and CWT retention. In February of 2012, 68,400 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 4**). 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. Also in 2012, in-ladder PIT tag arrays will be completed in the Red River and Crooked River traps, enabling researchers to estimate corrected PIT tag ratios in returning adult Chinook salmon returning to those two facilities. *Jerry McGehee / John Cassinelli*

#### **2.1.4. Nez Perce Tribal Hatchery/Clearwater Hatchery**

- 2.1.4.1. Production status - As of December 31, 2011, there were 195,058 BY10 spring Chinook averaging 37.3 fpp on station. Target size at release is 20 fpp. These fish have been bath-treated for Ichthyophthirius (“Ich”) with formalin multiple times this fall/winter per recommendation of the IFHC. Mortalities have been normal, due to very low water temperatures in the “S” channels where they are reared.
- 2.1.4.2. Projected release – Fish are targeted for release beginning April 1, 2012. Typically they would 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 would occur by April 15. However, due to the persistent infestation of Ich these fish are carrying, they may be released earlier to avoid high mortalities. This will occur with notice to the comanagers and when water temperatures increase in the spring. Specific dates will be determined between NPTHC, IFHC, and the comanagers. *Steve Rodgers (Table 5)*
- 2.1.4.3. Fish health – In late fall 2011, Fish were found to have low levels of *Sanguinicola* and *Ichthyophthirius (Ich)* in the gills, and moderate to high levels of *Ich* and *Epitheliocystis* on the skin. Fish were treated with bath formalin treatments for several weeks in November. During January, very low *Ich* levels were found. No additional treatments are currently planned unless increased flashing and mortality is observed with increasing temperatures. Fish may also be released early to avoid high mortalities in the spring. A pre-release exam of 60 fish will be sampled for viral and bacterial pathogens prior to release. *Marilyn Blair*
- 2.1.4.4. M&E – These fish are 100% CWT’d, and 60K are also AD clipped. Up to 595 fish will be PIT tagged by NPTHC M&E staff prior to release for “monitor mode” (6,000) and SURPH survival to LGR (300). *Sherman Sprague/Steve Rodgers*

## **2.2. Brood Year 2011 Spring Chinook**

### **2.2.1. Dworshak**

- 2.2.1.1. Production status - Eggs from Takes 2-3-4 of Kooskia stock BY11 SCS were shipped to Kooskia NFH the same day they were spawned. There were 1.41 million eyed eggs of Dworshak stock SCS which remained at Dworshak for incubation. On January 1, 2012, there were approximately

1.41 million Dworshak stock eggs/sac-fry incubating at Dworshak. In the spring of 2012, SCS fry at Dworshak will be transferred directly from the egg trays into outside raceways. It is Dworshak's intent to gradually increase Chinook production since adult return goals are not met with current production levels. *Thomas Trock / Mark Drobish*

- 2.2.1.2. Fish health status –Adult IHNV prevalence was 17.2%. BY11 has experienced no problems to date. These fish will be monitored monthly and 60 fish will be sampled prior to release. *Marilyn Blair*
- 2.2.1.3. M&E - Approximately 120,000 Dworshak stock will be CWT in August for contribution monitoring (**Table 5**). 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. *Carrie Bretz*

### 2.2.2. Kooskia

- 2.2.2.1. Production status - Kooskia stock BY11 spring Chinook were spawned at Dworshack after fertilizing and disinfection the eggs were poured into egg tubes and transported to Kooskia NFH for incubation. Eggs were taken from a total of 223 females spawned with a total of 195 males. This produced an estimated total of 780,500 green eggs. Eggs were placed on chilled well water (approximately 40°F). Eggs were all hatched out by mid-December. *Kent Hills*
- 2.2.2.2. Fish health status - Adult IHNV prevalence was 51.4%. BY11 has experienced no problems to date. These fish will be monitored monthly and 60 fish will be sampled prior to release. *Marilyn Blair*
- 2.2.2.3. M&E - Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*. Adult monitoring for the ISS will continue, as will monitoring of the Kooskia weir. Current plans are to CWT approximately 100,000 in August, 2011 for contribution (**Table 5**) and 15,000 Kooskia smolts will receive PIT tags in January, 2013. At least 50,000 Chinook will not be AD clipped as per the US v. OR agreement, all others will be AD clipped in July-August, 2012. *Carrie Bretz*

### 2.2.3. Clearwater

- 2.2.3.1. Production status – The proposed number of Clearwater Fish Hatchery fish to be allocated from brood year 2011 is 2.235 million smolts, 200k-220k pre-smolts for NPTH, and 300k parr. *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 2.2.3.2. Estimated numbers/planned marking & tagging - All production Chinook are Ad clipped. Planned releases of BY11 Chinook are for 2,235,000 smolts 16-20 fish per pound. (This does not include 200K fish that will be transferred to NPTH in Sept 2011 nor the 300K parr released in the upper Selway but does include 335K for Clear Creek and 400k lower Selway River). The NPT will transfer the Clearwater stock fish to NPTH site during September 2012. Prior to marking NPT will provide wire for 100% CWT and 33% AD clips. Approximately 300K parr at 100 fpp will

be released in the upper Selway River at Magruder Ranger Station by Nez Perce Tribe transport trucks June 15-July 1, 2012. Red River and Powell acclimation ponds will be watered up and screens put in place by the third week of March each year. Beginning with BY09 the Crooked River Spring Chinook release of 700K was transferred to Red River in preparation for future the 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 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. All production Chinook are Ad clipped. NPT contact for transport is Steve Rodgers. (**Table 5**) *Lars Alsager/Mike Key*

2.2.3.3. Fish health status – BY11 Brood Powell Spring Chinook: IHNV was detected in 8/90 (8.9%) (sampled individually) of ovarian fluids and kidney/spleen tissues. ELISA sampling detected 75 Highs (13.8%) of the 540 females spawned (elevated ELISA values due to ABTS reagent). Eggs from females with high ELISA values were culled from the Clearwater Hatchery Chinook salmon program. Pre-spawning mortality was at 2.4% *Myxobolus cerebralis* was not detected in the 20 fish sampled.

Brood S.F. Clearwater Spring Chinook: IHNV was detected in 19/90 (21.1%). These detections were reported to the APHIS veterinarian-in-charge. ELISA sampling detected 53 Highs (13.5%) of the 393 females sampled (old ABTS reagents elevated ELISA values). Eggs from females with high ELISA values were culled from the Clearwater Hatchery Chinook program. Pre-spawning mortality was at 7.1%.

M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*

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
- Diagnostics on demand.
- 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 moved outside, at the end of October, and two weeks prior to out-planting. Seven weeks after marking and just prior to release 300 fish are sampled to quality check Ad clips and CWT retention. In February or March 2013, approximately 74,400 Chinook salmon (pending CSS funding) 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). *Jerry McGehee / John Cassinelli*

#### 2.2.4. Nez Perce Tribal Hatchery

*Approximately 400 spring Chinook salmon adults are needed for broodstock for the Nez Perce Tribal Hatchery spring Chinook program. This number does not include jacks (goal for jacks is less than 5% contribution to production annually), and accounts for pre-spawning mortality estimated at 15%, and a green egg to release mortality of 15% as well. This brood level will provide for a target release of 75,000 pre-smolts from Newsome Creek (South Fork Clearwater River) acclimation facility, 150,000 pre-smolts from Yoosa/Camp (Lolo Creek) acclimation facility and 400,000 parr into Meadow Creek (Selway River).*

2.2.4.1. Production status – As of December 31, 2011 there are 649,367 sac-fry on hand at NPTH to meet production goals listed in **Table 5**, for targeted 2012 release:

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

The NPT will transfer Clearwater stock BY2011 spring Chinook from Clearwater Hatchery to NPTH during early September 2012 (section 2.2.3.2). Fish will be reared in the NATURES “S” channels or linear raceways until late-March or early-April 2013 and released at approximately 20 fpp. *Steve Rodgers*

2.2.4.2. Estimated numbers/planned marking & tagging – PBT samples are taken from all adults used as broodstock, for use in determining origin of returning fish in future years. Fish destined for release from acclimation facilities (Yoosa/Camp Creek and Newsome Creek programs) will also be 100% marked (CWT) at approximately 160 fish per pound (2.52 g) at either NPTH or Sweetwater Springs. Meadow Creek unacclimated parr releases will not be CWT'd, since no returning adults are trapped and carcass recoveries are minimal. The Newsome Creek fish will be transferred to Sweetwater Springs in early spring to reduce densities at NPTH. 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 in April 2013 at NPTH, a portion of these 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 stream temperatures cool). Prior to release, 6,000 fish will be tagged with a PIT tag. Volitional release will begin on approximately October 3, with all fish forced out by October 17, 2012. Target size at release is 34 fish per pound (13.3 g) (**Table 4**).
- Newsome Creek – Transfer of fish will occur in late August or early September (when water temperatures cool). Prior to release, 3,000 fish will receive a PIT tag. Volitional release will begin on approximately October 4, with all remaining fish forced out by October 18, 2012. Target size at release is 29 fish per pound (15.6 g) (**Table 4**).
- Meadow Creek – Up to 400,000 parr will be direct stream released into Meadow Creek in 2012. Prior to release, 5,000 fish will receive a PIT tag. In June or July they will be transported and direct stream released via helicopter into the lower fifteen miles of Meadow Creek, Selway River. Target size at release is 117 fish per pound (3.9 grams) (**Table 4**). *Steve Rodgers*

2.2.4.4. Fish health status – 33.5% of the fish sampled were positive for IHNV. Eggs from 34 females were culled to bring all eggs to the status of being from females all under the ELISA O.D. value of .250. As of December 31, 2011 all BY2011 production fry are hatched and incubating at NPTH. *Marilyn Blair*

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 5**).
- Downstream migration – Operate rotary screw traps within Lolo and Newsome creeks to monitor movement, timing, condition factors, and population estimates. *Sherman Sprague*

2.2.4.6. Remote PIT Tag Array Monitoring and Evaluations - Information can be seen in section 1.1.1.4.

2.2.4.7. Communication - NPTH 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. *Steve Rodgers/Sherman Sprague*

### 2.3. Brood Year 2012 Spring Chinook

*Spring Coordination Kickoff Meeting will be scheduled for February 24, in Lewiston, Idaho. There are weekly conference calls scheduled for Tuesdays (beginning April 17, 2012), 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, out-planting plans, etc...*

#### 2.3.1. Dworshak

- 2.3.1.1. Projected adult returns - Based on tribal harvest, sport harvest data, rack returns, and ocean conditions during emigration; the forecasted return for 2012 Dworshak spring Chinook return to the Clearwater River is 18,828 fish (**Table 6a**). 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 2011 after dam counts of PIT tagged adults verify the estimates. *Chris Peery*
- 2.3.1.2. Ladder operation – Ladder opening will be heavily influenced by in-season run validation and timing. If possible and depending on in-season estimates, the 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. *Ray Jones*
- 2.3.1.3. Adult out-planting / distribution plans – **Table 7a** lists the prearranged streams to receive adult spring Chinook salmon. Out-planting will be coordinated between Mike Key (NPT) and Carrie Bretz (FWS). The earliest date the NPT trucks would be available for any out-planting is June 23. For out-plants to the Upper Selway River, the truck will be loaded beginning at 6 AM to allow time for the trip. All adults out-planted from Dworshak will receive a left opercula v-notch as shown in **Table 7b**. *Ray Jones*
- 2.3.1.4. Carcass disposition – Chinook carcasses will be used by research groups if possible. As an alternative to the landfill, carcasses will be disposed back into the Clearwater River at the Greer Bridge to allow nutrient recycling. Any erythromycin injected females would be disposed of at the local landfill. Since adult Chinook salmon are collected throughout the summer and then spawned in August/September, they receive multiple formalin treatments and therefore will not be offered for human consumption via the Food Bank. The exception to this would be if there are a surplus of Jacks in the return and the Nez Perce Tribe doesn't wish to utilize them for subsistence and the AOP partners support distribution to the Food Bank as was done in 2011. *Thomas Trock / Mark Drobish*
- 2.3.1.5. 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*. Genetic samples are also collected from all spawned adults

to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*

- 2.3.1.6. Spawning plans – Dworshak will spawn 400-600 females for its program and 210-240 females for Kooskia’s program. The number of eggs collected is based on historical adult survival, eye-up percentage, disease rates and smolt survival rates to meet smolt release targets. Broodstock collection is minimized to the extent possible. Eyed eggs in surplus of production needs are culled based on disease sampling and by eye-up percentages. *Thomas Trock*
- 2.3.1.7. Egg Incubation – All eggs taken for Kooskia will be incubated at the Kooskia NFH. Dworshak stock eggs will be incubated at Dworshak. 350,000 green eggs will be received from Clearwater Fish Hatchery (Powell Stock). *Thomas Trock/Lars Alsager/Cassie Sundquist*
- 2.3.1.8. Fish health – Every adult female will be sampled individually for BKD with ELISA. Up to 150 ovarian fluid samples will be sampled for viruses. An additional 60 tissue samples will be taken for virus, bacteria, *Myxobolus cerebralis* and *C. Shasta*. All eggs from high and medium ELISA level females will be culled above the .250 ELISA O.D. cut off level. *Marilyn Blair*
- 2.3.1.9. 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 200 brood will be collected at Kooskia for a total of 800 broodstock. This brood level would produce 600,000 smolts for the Kooskia mitigation program and approximately 235,000 smolts (reared at Clearwater FH) for release into Clear Creek.*

- 2.3.2.1. Projected adult returns – Based on 2011 tribal and sport harvest data, rack returns and ocean conditions during emigration; the 2012 forecasted return, for Kooskia NFH spring Chinook to the Clearwater River is 2,657 fish (**Table 6a**) and IDFG estimates another 1,777 adults returning from the 2010 release of 235k smolts into Clear Creek. Given this prediction it’s likely that Kooskia will meet broodstock needs. Additionally, given the agreement for backfilling Kooskia broodstock, IDFG and the NPT will likely open a sport and tribal fisheries in the Middle Fork Clearwater River area in the spring of 2012. This will be updated in-season as dam counts of PIT tagged adults update the estimates. *Chris Peery*
- 2.3.2.2. Trap operation – Trap will be opened for Chinook collection around the 15<sup>th</sup> of May until warm water temperatures dictate its closure. 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. *Carrie Bretz*
- 2.3.2.3. Adult out-planting / distribution plans – **Table 7a** lists the prearranged streams to receive adult spring Chinook salmon. Chinook loaded for adult out-planting will be loaded directly into NPT trucks at Kooskia. Out-planting will be coordinated between Mike Key (NPT) and Carrie Bretz



(FWS). All adults out-planted from Kooskia will receive two right opercula v-notches as shown in **Table 7b**. 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. *Carrie Bretz*. Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*
- 2.3.2.5. Spawning plans – Kooskia spring Chinook BY 12 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 ELISA values will be kept and the medium to high eggs are discarded. Jacks will be utilized for ~10% of the spawners. *Kent Hills*
- 2.3.2.6. Egg incubation – BY12 Kooskia stock (780k) eggs will be incubated at KNFH. The new egg incubation recirculation system will be utilized. BY 2012 eggs will be incubated on chilled well water approximately 38-40°F. Normally eggs all hatch out by mid-December and are transferred to tanks in mid-March. *Kent Hills*
- 2.3.2.7. Fish Health – Every adult female will be sampled individually for BKD with ELISA. Up to 150 ovarian fluid samples will be sampled for viruses. An additional 60 tissue samples will be taken for virus, bacteria, *Myxobolus cerebralis* and *Ceratomyxa shasta*. All eggs from high and medium ELISA level females will be culled above the .250 ELISA O.D. cut off level. *Marilyn Blair*
- 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 –

*2012 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 16,323 for 2 and 3 ocean fish (**Table 6b**). 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*
- 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, (at Crooked River only) 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 954 females and 954 males for Clearwater Hatchery allocations. If CFH Manager predicts elevated pre-spawning 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 out-plants will be implemented at locations and levels given in **Table 7a**. *Jerry McGehee / Cassie Sundquist / Lars Alsager*

- 2.3.3.3. Adult out-planting / distribution plans – The out-planting 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 7a**, 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 7a** and **7b** for out-planting priority streams and marks. *Jerry McGehee*
- 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 / Cassie Sundquist / Lars Alsager*
- 2.3.3.5. Adult M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*
- 2.3.3.6. 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. BY12 production targets will be approximately 2.13Mil. FTS, 200k Pre-smolts transferred to NPTH in September 2012 and 350k green eggs for 300k parr will be transferred to DNFH for incubation and rearing and transport by NPTH to upper Selway River sites in 2013. *Jerry McGehee / Cassie Sundquist / Lars Alsager*

- 2.3.3.7. 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 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 30 – 45 days 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 NPTH is 2,776. Projected returns for Lolo and Newsome creeks are 731 and 466, respectively (**Table 6c**). At the present time, there are no adult return estimates for Meadow Creek. 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 2012 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 31<sup>st</sup> or until broodstock needs are met.

Broodstock selection will be based on existing fin clips, marks, or tags. All known Idaho Supplementation Studies (ISS), and radio tagged fish will be returned to the Clearwater River and allowed to continue their spawning migration. Once run strength is realized, all ad clipped fish are scheduled to be recycled through the fishery with left opercle punch.

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 400 adults (200 females and 200 males) may be collected at these facilities if necessary to help NPTH 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. Alternatively, surplus adult SCS trapped at NPTH may be available for use by Clearwater Hatchery in the event they are short of broodstock. *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 19<sup>th</sup>, 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). In an effort to encourage natural production in Lolo and Newsome creeks, during low return years, broodstock collection will have a very low priority. We anticipate meeting broodstock goals at the NPTHC based on returns to the ladder at NPTH. In high return years, localized broodstock may be collected. At which time pass/keep ratios will be developed. 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. *Sherman Sprague*
- 2.3.4.4. Adult out-planting plans – Only adults and jacks that have not been inoculated may be out-planted. Fish that have been inoculated and are utilized for spawning will be buried on site at NPTH. All ad clipped adults will be recycled to the fishery at Lenore with left opercula punch. Please see **Table 7a** and **7b**. *Becky Johnson / Steve Rodgers*
- 2.3.4.5. Spawning plans – The first sort and spawn will occur as early as July 31<sup>st</sup>. Spawning will occur on Tuesday of each week at NPTH, through the end of August. 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. Adult M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*
- 2.3.4.7. 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). PBT tagging (by taking genetics from all broodstock) is conducted on all SCS within NPTHC. Production (except Meadow Creek) will also be 100% marked with a CWT and sub-release groups will be PIT tagged. *Steve Rodgers*
- 2.3.4.8. 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 60 fish sample (head wedge) will be taken for *Myxobolus cerebralis* analysis. Juveniles will be inspected on a monthly monitoring basis unless diagnostics are necessary. Pre-liberation samples prior to release (60 fish sample). *Marilyn Blair*

- 2.3.4.9. 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. NPTH also produces an annual operation plan and annual operation report for BPA and the comanagers. *Steve Rodgers*

### 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 million 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 million. 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. Brood Year 2010 Summer Chinook

##### 3.1.1. Clearwater

- 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 evaluated how well all stages of production adjusted to the increased 200K. All stages of production adjusted well to the 200K increase but we are going to remain at Option #1 until following items including program infrastructure and budget adjustments are 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. 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. *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 3.1.1.2. Projected Release – In March of 2012 the projected release will be approximately 206,000 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. All females whose eggs were destined for the Clearwater program were sampled for viral replicating agents. Juveniles will be inspected on a quarterly basis with additional diagnostics on demand. Pre-liberation samples prior to release at satellites (60 fish

sampled for *Renibacterium salmoninarum*, viral replicating agents, and *Myxobolus cerebralis*). *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 moved outside, at the end of October and two weeks prior to out-planting. Fish will be 100% CWT with no ad clip. Seven weeks after marking and prior to release, 100 fish are sampled to determine CWT retention. In February or March 2012, approximately 25,500 summer Chinook salmon will be PIT tagged to evaluate juvenile timing and survival from release to Lower Granite Dam and to estimate an adult escapement back to Lower Granite Dam as well as to provide a tool for in-season fisheries management (Table 5). *Jerry McGehee / John Cassinelli*

### 3.2. Brood Year 2011 Summer Chinook

#### 3.2.1. Clearwater

- 3.2.1.1. Trapping – Summer Chinook were trapped at the South Fork of the Salmon trap operated by McCall Fish Hatchery. *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 3.2.1.2. Spawning – Spawning occurred at the South Fork of the Salmon trap. One or two Clearwater Fish Hatchery staff traveled there and assisted with spawning and disease sampling procedures. They packaged the green eggs for direct transport to the Clearwater Fish Hatchery.
- 3.2.1.3. Adult M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*
- 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. We stayed with Option 1 for year two. *Jerry McGehee*

- 3.2.1.5. 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 for *Renibacterium salmoninarum*, viral replicating agents, and *Myxobolus cerebralis*). *Doug Munson*
- 3.2.1.6. 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 moved outside, at the end of October and two weeks prior to out-planting. Fish will be 100% CWT with no ad clip. Seven weeks after marking and prior to release, 100 fish are sampled to determine CWT retention. In February or March 2012, approximately 25,500 summer Chinook salmon will be PIT tagged to evaluate juvenile timing and survival from release to Lower Granite Dam and to estimate an adult escapement back to Lower Granite Dam as well as to provide a tool for in-season fisheries management (Table 5). *Jerry McGehee / John Cassinelli*

### 3.3. Brood Year 2012 Summer Chinook

#### 3.3.1. Clearwater

- 3.3.1.1. Trapping – Summer Chinook will be trapped at the South Fork of the Salmon River trap operated by McCall Fish Hatchery. 1-ocean fish are destined to return to Crooked River trap in 2012. *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 3.3.1.2. Spawning – Spawning will occur at the South Fork of the Salmon trap. One or two Clearwater Fish Hatchery staff will travel there and assist with spawning and disease sampling procedures. They will package the green eggs for direct transport to the Clearwater Fish Hatchery. *Jerry McGehee / Cassie Sundquist / Lars Alsager*
- 3.3.1.3. Adult M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*
- 3.3.1.4. Juvenile Production – Summer Chinook rearing numbers will increase in 2012 due to the transfer of the 300k Spring Chinook for the Upper Selway parr group to Dworshak. The Spring Chinook eggs (Selway parr) will be transferred to Dworshak for incubation as green eggs. This shift of Selway parr, will allow Clearwater to move to option 2 (400,000 Summer Chinook FTS) of the Increased Chinook Rearing Plan. *Jerry McGehee / Cassie Sundquist / Lars Alsager*

- 3.3.1.5. 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 *Renibacterium salmoninarum*, viral replicating agents, and *Myxobolus cerebralis*). *Doug Munson*

#### 4. COHO –

*A Coho reintroduction program was initiated by the Nez Perce Tribe in 1995. Fish production for this program comes from Eagle Creek NFH and Dworshak and Kooskia NFH. The long-term adult return goal is 14,000 to the Clearwater River subbasin. The broodstock collection goal is 1,200 adults (50% females) returning the Clearwater River. Smolt release goals have ranged as high as 1.1 million, with the last 5 years at 830,000 smolts annually. Currently, production releases goals are 550,000 smolts reared out-of-basin from Eagle Creek NFH - 275,000 smolts in Lapwai Creek and 275,000 smolts in Clear Creek. Smolts reared at Dworshak NFH and released into Clear Creek range from 280,000 to 300,000 smolts annually being acclimated at Kooskia NFH prior to release.*

#### 4.1. Brood Year 2010 Coho

##### 4.1.1. Dworshak

- 4.1.1.1. Production status – There were 332,692 fish on hand (10,063 pounds, 33.06 fpp) at Dworshak as of January 1<sup>st</sup>, 2012. *Mike Bisbee*
- 4.1.1.2. Projected transfer date/acclimation period at Kooskia – Smolts will be transferred to Kooskia NFH during the final week of February for a 4-5 week acclimation. *Mike Bisbee*
- 4.1.1.3. Numbers/dates/marks & tags – 56,219 fingerling Coho were marked with a CWT (no AD clip) on July 26<sup>th</sup>, 2011. Prior to release from Kooskia 5,000 fish will be PIT tagged. PIT tags will be provided by the FWS through Mitchell Act funding. **(Table 8)** *Mike Bisbee*
- 4.1.1.4. Fish health – These fish had problems with gas bubble disease during the summer months. Fish are sampled monthly and prior to liberation; a 60 fish sample will be taken and assayed for virus, bacteria, and parasites. *Marilyn Blair*
- 4.1.1.5. Juvenile M&E – marks used are PIT and CWT tags. These marks are intended to provide the following information;
- Juvenile survival and emigration timing to Lower Granite Dam.
  - Smolt-to-adult survival and adult return timing based on counts at Lower Granite Dam, ladder counts at Dworshak and Kooskia Hatcheries. *Mike Bisbee*

##### 4.1.2. Transfers from Eagle Creek NFH



- 4.1.2.1. Projected transfer – Date/acclimation period at Kooskia – smolts will be transferred to Kooskia NFH during the first or second weeks of March for a 3-4 week acclimation. *Mike Bisbee*
- 4.1.2.2. Projected direct release – Smolts will be transported to Lapwai Creek during the first or second weeks of March to be direct released. *Mike Bisbee*
- 4.1.2.3. Numbers/dates/marks & tags – Coho were marked – 60,000 CWT only 30,000 for release into Clear Creek and 30,000 for release into Lapwai 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 8**). *Mike Bisbee*
- 4.1.2.4. Fish health – Disease history for this brood year of fish is completed at Lower Columbia River Fish Health Center. All fish are certified disease free for pathogens tested at that point in time. *Marilyn Blair*
- 4.1.2.5. 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. Brood Year 2011 Coho

### 4.2.1. Dworshak

- 4.2.1.1. Production status – Coho recognized at Lower Granite Dam totaled 5,057 adults and 291 jacks in 2011. A total of 1,987 Coho salmon broodstock were collected consisting of 1,054 females, 885 males, and 37 jacks, and 11 unsexed adults. Broodstock collections occurred at Lapwai Creek weir – 441 fish, at Dworshak NFH – 310 fish, and at Kooskia NFH – 1,236 fish. Fish excess to broodstock needs was 801. Fish released above the weir in Lapwai Creek were 331 an additional 133 fish were out-planted into Lapwai Creek after spawning was completed. 154 fish were out-planted into the North Fork Clearwater River, 123 were out-planted into Sweetwater Creek, 50 were out-planted into Mission Creek, and 10 jacks were out-planted into the Middle fork Clearwater River. A total of 512 females were spawned with 491 males. 47 females were culled; eggs from 465 Clearwater stock females were spawned and enumerated using a Van Gaalen egg sorter; percent eye-up was 80.07% and enumerated eggs totaled 1,325,598. *Mike Bisbee*

### 4.2.2. Eagle Creek

- 4.2.2.1. Egg transfer to Eagle Creek National Fish Hatchery  
December 2011 a total of 616,471 eyed eggs from returning Clearwater River adult Coho were transferred from Dworshak National Fish Hatchery to Eagle Creek National Fish Hatchery. These eggs will be reared to smolt stage and transported back to the Clearwater Basin for release in 2013. *Mike Bisbee*

- 4.2.2.2. Projected production – We anticipate Kooskia/Dworshak production will be ~350,000 reared through spring 2012. Coho juveniles will be inventoried in the summer of 2012 to ensure that no more than 300,000 fish are reared in the space allotted at Dworshak NFH (System III, Burrows Ponds). Any excess Coho parr will be removed and out-planted to designated out-plant streams (**Table 9**). *Mike Bisbee*
- 4.2.2.3. Fish health – Every adult female was sampled individually for BKD with ELISA; values above the cutoff (.25) values resulted in two females' eggs culled. Approximately 1.4% of the adults sampled were positive for IHNV. An additional 60 tissue samples were taken for virus, bacteria, *M. cerebralis* and *C. shasta*. Juvenile fish will be sampled monthly and prior to liberation. We suggest treating with Florfenicol prior to transfer to Kooskia if Bacterial Coldwater Disease is present, to help guard against post-transport, stress induced mortality from Bacterial Coldwater. Disease history for this brood year of fish is completed at Lower Columbia River Fish Health Center. All fish are certified disease free for pathogens tested at that point in time. *Marilyn Blair*
- 4.2.2.4. Projected release – Clearwater stock smolts reared at Eagle Creek NFH will be released into Clear and Lapwai Creeks in mid-March 2013. Approximately 550,000 (275,000 each stream) will be acclimated or direct stream released. *Mike Bisbee*
- 4.2.2.5. M&E – M&E – Current plans are to CWT 100,000 pre-smolts in July, 2012. CWT recovery helps determine smolt-to-adult survival, and adult return timing is based on adult counts at Lower Granite Dam and ladder counts at Dworshak and Kooskia hatcheries. Marking of fish will occur at Eagle Creek Hatchery with 30,000 CWT only mark per each release group (Lapwai Creek and Clear Creek). ). If FWS, through Mitchell Act, is able to provide PIT tags, then the Eagle Creek release groups will be marked with 5,000 PIT tags each for a total of 10,000 PIT tags, tagged in February 2013 (**Table 9**). These marks estimate the following; Juvenile survival to Lower Granite Dam based on PIT tag detection. Adult return timing based on PIT tags and counts at Lower Granite Dam. Smolt-to-adult survival based on PIT tags and the number of juveniles released and adult returns over Lower Granite Dam. Adults will be accounted for by redd surveys in Clear Creek – may be limited Broodstock counts at Dworshak and Kooskia NFH, Lapwai Creek, Lyons Ferry Hatchery, Nez Perce Tribal Hatchery. *Mike Bisbee*

#### 4.3. Brood Year 2012 Coho –

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

#### 4.3.1. Kooskia

- 4.3.1.1. Weir/Trap operation – Weir operations will start October 1, 2012 to trap adult Coho at Lapwai Creek and Kooskia NFH. *Mike Bisbee*.
- 4.3.1.2. Adult transfers – Depending on adult return projection and estimated broodstock collection adult Coho trapped at Lapwai weir or other sites will be transported to Kooskia NFH for holding and spawning. Adult hatchery steelhead incidentally trapped at the Kooskia weir will be transported to the S.F. Clearwater and released by the NPT. *Mike Bisbee*
- 4.3.1.3. Adult out-planting – When Coho broodstock goals have been met, surplus adults collected will be out-planted to Lapwai Creek, Lolo Creek, and El Dorado Creek or released back into the North Fork or South Fork Clearwater rivers. *Mike Bisbee*
- 4.3.1.4. Coho spawning – All Coho spawning will take place at Kooskia NFH. The broodstock goal is to collect and spawn 550 females to provide eggs for both the Dworshak and the Eagle Creek programs. 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*
- 4.3.1.5. Adult M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*
- 4.3.1.6. 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 for BKD testing by ELISA, 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. *Marilyn Blair*
- 4.3.1.7. Adult carcasses – All adult Coho carcasses will be out planted into Clear Creek, Lapwai Creek and the main stem Clearwater River following spawning. *Mike Bisbee*
- 4.3.1.8. Juvenile M&E
- Smolt-to-adult survival based on weir monitoring in Clear Creek.

#### 4.3.2. Dworshak

- 4.3.2.1. Ladder operation – The Dworshak ladder will be operated during the fall of 2012 to trap early return steelhead. Adult Coho trapped during this time will be transported to Kooskia for broodstock. Depending on the projected return, the NPT may request that the ladder be operated several additional times to collect Coho broodstock as needed to meet production goals. *Mike Bisbee*
- 4.3.2.2. Adult transfers – Adult Coho trapped as broodstock will be transported by the NPT to Kooskia and held until spawning occurs. *Mike Bisbee*

- 4.3.2.3. Adult out-planting – Whenever adults surplus to broodstock needs occur, these adults will be out-planted to North Fork or Main stem Clearwater Rivers, Lapwai Creek, Lolo Creek, and El Dorado Creek. *Mike Bisbee*
- 4.3.2.4. Eagle Creek NFH – When Clearwater broodstock can provide eggs for the Eagle Creek smolt program, eggs and milt will be collected at Kooskia NFH and transported to Dworshak for delayed fertilization. These 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*
- 4.3.2.5. 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, Lapwai Creek, Lyons Ferry Hatchery, Nez Perce Tribal Hatchery. *Mike Bisbee*

#### **4.3.3. Lapwai Creek**

- 4.3.3.1. Weir operation – A picket weir will be installed and become operable starting October 1, 2012 to trap Coho broodstock near the train bridge and the mouth of Lapwai Creek. Pass/keep ratios will be adjusted on a weekly basis dependent on the projected return and actual captures. The adult weir will also be used for escapement, estimating sex composition, age structure and return timing. *Mike Bisbee*
- 4.3.3.2. Adult transfers - Adult steelhead trapped during operation of the Lapwai Creek Coho weir will be passed above the weir. Adult fall Chinook salmon trapped during operation of the weir will be transported and released back into the Main stem Clearwater River. *Mike Bisbee*
- 4.3.3.3. Juvenile M&E –  
Smolt-to-adult survival based on weir monitoring in Lapwai Creek. Redd surveys in Lapwai Creek. 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, Lapwai Creek, Lyons Ferry Hatchery, Nez Perce Tribal Hatchery. *Mike Bisbee*
- 4.3.3.4. Communication – Clearwater Coho Project Leader produces monthly reports for coordination between hatchery management and staff communication. Semi-annual and annual reports are a contract requirement to the CRITFC and NOAA funding entities. *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. Brood Year 2010 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 sub-yearlings. 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 February 29, March 1 and 2, 2012. *Bruce McLeod / Mike Key*
- 5.1.1.2. Projected release – Target release will be 150,000 yearlings at 10 fpp on April 12, 2012. 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 10**) *Bruce McLeod / Mike Key*
- 5.1.1.3. Fish health – Import permit sampling was done on Jan 12, 2011 and results were sent to Eagle Fish health Lab and Bruce McLeod. Monitoring samples for BKD were taken weekly and a 60 fish sample was collected and assayed prior to release from each site. *Marilyn Blair*
- 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/marketing 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 spawned 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. *Bill Arnsberg*

## **5.2. Brood Year 2011 Fall Chinook**

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

- 5.2.1.1. Production status – Approximately 500,000 sub-yearlings are being reared at Lyons Ferry Hatchery for transfer to the Big Canyon acclimation facility on May 2, 3, 4, 2012. *Bruce McLeod / Mike Key*
- 5.2.1.2. Projected release – Target release is 500,000 sub-yearlings at 75-50 fpp on May 24, 2012. A group of 100,000 fish are CWT / ad-clipped and 100,000 CWT only for evaluation – the balance of fish are unmarked. 41,051 will be PIT tagged. (**Table 11**) *Bruce McLeod / Mike Key*
- 5.2.1.3. Fish health - Import permit sampling was done on April 12, 2011. A 60 fish sample was collected and assayed prior to release from each site. *Marilyn Blair*
- 5.2.1.4. Juvenile M&E – Sub-yearling 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 20,801 sub-yearlings to estimate survival, migration rate and timing through the FCRPS. An additional 17,720 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 spawned 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. *Bill Arnsberg*

**5.2.2. Nez Perce Tribal Hatchery –**

*Nez Perce Tribal Hatchery Complex is authorized to produce 1.4 million sub-yearling 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. Production status – As of December 31, 2011, there are 1,618,819 fall Chinook eggs/fry on hand at NPTH. *Steve Rodgers*

- 5.2.2.2. Projected release – 1.4 million sub-yearlings.

NPTH: A release of 500,000 sub-yearlings into the Clearwater River at 50 fpp (9.1 g) 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. 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 15, 2012. Hatchery or river conditions may warrant a shortened or no volitional release period.

North Lapwai Valley: A release of 500,000 sub-yearlings at 50 fpp (9.1 g) into the Clearwater River is scheduled for mid-May, 2012. Fish slated for final acclimation and release from North Lapwai Valley AF will be marked at either NPTH or at NLV, depending on water and rearing space demands at NPTH. 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. Prior to release, 3,000 fish will be PIT tagged for outmigration monitoring. 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° F (17.2° C) and/or DO levels drop significantly. Target release date is May 11, 2012.

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 16,420 fish will be marked with a PIT tag. Of those, 3,000 PIT tags will be inserted into this group for standard outmigration monitoring by NPT M&E biologists, 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 13, 2012.

Lukes Gulch: A release of 200,000 sub-yearlings into the S. F. Clearwater River at 50 fpp (9.1 g) 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 16,420 fish will be marked with a PIT tag. Of those, 3,000 are for standard out migration monitoring by NPT M&E biologists, 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, 2012. (**Table 11**) *Steve Rodgers*

5.2.2.3. Fish health – Kidney samples were assayed by ELISA on all spawned females; eggs from 7 females were culled due to ELISA OD's above the cut-off level (.25). 150 ovarian fluid samples, 60 tissues samples and 60 cranial samples were taken for assay. IHNV was found in 30.8 % of samples tested to date. Sixty fish sample will be collected and assayed prior to release. *Marilyn Blair*

5.2.2.4. 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 13,420 PIT tags each as part of the ACOE transportation study, in addition to the standard 3,000 PIT tags.

- 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*

5.2.2.5. Communication – NPTH 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. *Steve Rodgers*

### 5.2.3. Dworshak NFH

5.2.3.1. Transportation Study – Fall Chinook salmon were temporarily reared at Dworshak NFH in 2005, 2006, 2008, 2009, 2010, and 2011 for the transportation study. For 2012 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 2012 and 30% are being incubated for ponding in April 2012. After Dworshak spring Chinook salmon are released in early to mid-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. *Carrie Bretz / Jay Hesse*

5.2.3.2. Projected release: The Snake River “surrogate” sub-yearlings of 229,600 will be reared to 65-70 mm for PIT tagging and release from mid-May to early June. The Clearwater River surrogates of 98,400 will be reared to 65-70 mm for release from mid-June to early July.

5.2.3.3. Fish health : Prior to release, disease testing will be conducted

5.2.3.4. M&E : Snake River and Clearwater groups will be 100% PIT tagged 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. This is the last year for the transportation study. *Carrie Bretz / Jay Hesse*

## 5.3. Brood year 2012 Fall Chinook

### 5.3.1. Lower Granite Dam 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. Activities involving trapping and collection of adult FCS for*



*broodstock were covered under ESA Section 10 Permit No. 1530 which expired in December 2010, and was extended to cover trapping activities in 2011.*

*Currently, a draft FCS HGMP has been submitted and WDFW, NPT, and IDFG are working with NOAA Fisheries on renewal of ESA coverage through HGMP consultation. This consultation will hopefully be completed sometime in 2012.*

- 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 70° F (22.2° C). 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 2012 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. In an effort to minimize use of one-salt males in the broodstock, co-managers use historical age-class data from previous years CWT recoveries and run predictions to determine a “jack” cutoff length in advance of the trapping season. This cutoff is typically somewhere between 65-75 cm. Fish smaller than this cutoff length are not transported to NPTH. 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 (LGR and the NPTH trap) 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*

### **5.3.2. Nez Perce Tribal Hatchery**

- 5.3.2.1. 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 when necessary.

In an effort to minimize use of one-salt males in the broodstock, comanagers use historical age-class data from previous years CWT recoveries and run predictions to determine a “jack” cutoff length in advance of the trapping season. This cutoff is typically somewhere between 65-75 cm. Fish smaller than this cutoff length are not kept, instead they are returned to the river or used for subsistence.

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, or tribal subsistence will be out-planted for supplementation fish for research requests will be considered and reviewed by co-managers. In the event of a surplus, eggs/fish will be utilized according to the following prioritized list:

- To meet other U.S. vs. Oregon priorities first; then
- Surpluses may be divided proportionally between NPTHC FCS production groups; then
- A second, later on-station release may be approved from NPTH into the Clearwater River, with comanager/policy decision on marking agreed to in advance; or
- A last option would be out-planting fry into the lower Clearwater River.

All of these options for utilization of surplus production will be discussed with comanagers.

- 5.3.2.2. Out-planting – locations and numbers of excess adult FCS will be coordinated on a seasonal basis with IDFG and FWS. No injected or inoculated adults will be out-planted, and instead will be buried on site at NPTH. *Steve Rodgers, Becky Johnson*
- 5.3.2.3. Spawning plans – Spawning at NPTH will occur every Tuesday beginning on October 23<sup>rd</sup>, 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). 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 (sGnRH $\alpha$ ) may be used on remaining un-spawned LGR females to facilitate maturation. Adults from LGR that have CWT’s and are excess to broodstock needs will be sacrificed to recover the wire for run-reconstruction purposes.

Adults 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 out-planted into closed waters, and/or marked differentially for easy identification by anglers. However, no inoculated or injected fish will be out-planted. 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, if they have not been injected or inoculated.

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 NPTH 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, if they have not been injected or inoculated. *Steve Rodgers*

5.3.2.4. Adult M&E – Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Brian Leth*

5.3.2.5. Egg Incubation – Fertilized eggs will be water hardened for 30 minutes 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 2011 (but are not likely) depending on the broodstock availability for NPTH and Lyons Ferry Hatchery. *Becky Johnson, Steve Rodgers*

5.3.2.6. 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*

5.3.2.7. 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 virus, bacteria and *Myxobolus cerebralis*. Brood fish health samples will be taken by NPT staff and delivered to Idaho Fish Health Center personnel for analysis. Eggs from fish with a high BKD titer over the .250 ELISA O.D. value will be culled. *Marilyn Blair*

5.3.2.8. 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. *Steve Rodgers*

## 6. RAINBOW TROUT

### 6.1. Dworshak Reservoir Mitigation –

The initial mitigation responsibility for Dworshak Dam Project was to provide 100,000 pounds of rainbow trout annually to be stocked into Dworshak Reservoir. This mitigation has evolved over the years to approximately 18,000 pounds of rainbow trout or 50,000 juveniles. Based on creel information provided by IDFG only about 5% of these rainbow trout outplants in Dworshak Reservoir return to creel. Therefore, IDFG and NPT have a proposal for 2012 to change the release location of these fish to lowland lakes or reservoirs in the North Fork Clearwater drainage and Tunnel Pond (near Orofino) where return to creel is 50% or better. IDFG and NPT, in cooperation with FWS, are in discussion with the COE on developing agreed to alternate release locations for these rainbow trout. *Lars Alsager / Joe DuPont/Tod Sween*

### 6.2. Clearwater Basin –

Until 2009, IDFG annually stocked approximately 50,000 (3,300 lbs) of Kamloops rainbow trout from Lyons Ferry Hatchery into the Clearwater River system. In 2010, IDFG and NPT agreed to a new allocation and release locations for these fish. In 2012, 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 approximately 100,000 IDFG reared trout. There are 25+ plant sites, requiring 100+ trips, and stocking occurs from April to October. In 2012 Clearwater Fish Hatchery is scheduled to release approximately 112,000 catchable rainbow trout. *Lars Alsager*

**7. PACIFIC LAMPREY –**

*The purpose of this stop gap effort by NPT Fisheries is to avoid local extirpation in the Snake River Basin and maintain a population of ammocoetes that serve as a source of pheromone attractants drawing adults upstream to spawn in the abundant habitat in this region, thereby continuing a presence in the Snake River Basin until upstream adult and downstream juvenile passage problems are identified and corrected, and healthy, harvestable populations are restored. The Nez Perce Tribe believes it is imperative to restore this important component of the ecosystem and retain cultural values.*

**7.1. Nez Perce Tribal Hatchery –**

On December 7, 2011 NPT Fisheries staff collected 138 adult Pacific lamprey from the Yakama Indian Nation (YIN) Fisheries Hatchery site near Prosser, Washington, for transport back to the holding tanks at NPTH. These fish were actively trapped by YIN staff earlier in 2011 at the Bonneville, The Dalles, and John Day Dams on the main stem Columbia River during the summer lamprey runs. December 8, 2011 another 121 fish were transported from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) holding site near Pendleton, Oregon to NPTH. These fish had been trapped by CTUIR Fisheries staff from main stem Columbia River dams. All 259 lamprey were previously injected with Oxytetracycline by CTUIR and YIN staff as a prophylaxis against Furunculosis. Lamprey adults were held over the winter months at NPTH. NPT plans to out-plant these adults during May 2012 in Lolo, Orofino, and Newsome creeks in Idaho and Asotin Creek in Washington to spawn naturally. Due to the greater quantity of lamprey available this year, additional out-plants are under consideration, including Big Canyon (tributary to Clearwater River) and South Fork Salmon in Idaho, and Wallowa/Imnaha in Oregon. Prior to release a subset of these fish may be tagged for telemetric tracking (in collaboration with USFWS). Genetic samples are collected by NPT staff for later analysis. *Tod Sween*

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