

**2013**

**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

April 3, 2013

**TABLE OF CONTENTS**

**CLEARWATER BASIN ANNUAL OPERATING PLAN (AOP) 2013**

**1. STEELHEAD..... 1**

*1.1. Brood Year 2012 Steelhead..... 1*

    1.1.1. DNFH..... 1

    1.1.2. CFH..... 2

*1.2. Brood Year 2013 Steelhead..... 4*

    1.2.1. DNFH..... 4

    1.2.2. KNFH..... 8

    1.2.3. CFH..... 9

**2. SPRING CHINOOK SALMON..... 10**

*2.1. Brood Year 2011 Spring Chinook ..... 11*

    2.1.1. DNFH..... 11

    2.1.2. KNFH..... 11

    2.1.3. CFH..... 12

    2.1.4. NPTH ..... 14

*2.2. Brood Year 2012 Spring Chinook ..... 14*

    2.2.1. DNFH..... 14

    2.2.2. KNFH..... 15

    2.2.3. CFH..... 16

    2.2.4. NPTH ..... 18

*2.3. Brood Year 2013 Spring Chinook ..... 20*

    2.3.1. DNFH..... 20

    2.3.2. KNFH..... 21

    2.3.3. CFH..... 22

    2.3.4. NPTH ..... 24

**3. SUMMER CHINOOK SALMON..... 27**

*3.1. Brood Year 2011 Summer Chinook..... 27*

    3.1.1. CFH..... 27

*3.2. Brood Year 2012 Summer Chinook..... 28*

    3.2.1. CFH..... 28

*3.3. Brood Year 2013 Summer Chinook..... 29*

    3.3.1. CFH..... 30

**4. COHO ..... 31**

*4.1. Brood Year 2011 Coho..... 31*

    4.1.1. DNFH..... 31

*4.2. Brood Year 2012 Coho..... 32*

|           |   |           |
|-----------|---|-----------|
| 4.2.1.    | DNFH.....   | 32        |
| 4.2.2.    | Eagle Creek.....  | 32        |
| 4.3.      | <i>Brood Year 2013 Coho</i> .....   | 33        |
| 4.3.1.    | KNFH.....   | 33        |
| 4.3.2.    | DNFH.....   | 34        |
| 4.3.3.    | Lapwai Creek.....   | 34        |
| <b>5.</b> | <b>FALL CHINOOK SALMON.....</b>   | <b>35</b> |
| 5.1.      | <i>Brood Year 2011 Fall Chinook</i> .....                                     | 35        |
| 5.1.1.    | FCAP – Big Canyon Facility.....   | 35        |
| 5.2.      | <i>Brood Year 2012 Fall Chinook</i> .....                                     | 36        |
| 5.2.1.    | FCAP – Big Canyon Facility.....   | 36        |
| 5.2.2.    | NPTH.....   | 36        |
| 5.3.      | <i>Brood Year 2013 Fall Chinook</i> .....                                     | 38        |
| 5.3.1.    | Lower Granite Dam Adult collection.....                                       | 38        |
| 5.3.2.    | NPTH.....   | 39        |
| <b>6.</b> | <b>RAINBOW TROUT.....</b>   | <b>42</b> |
| 6.1.      | <i>Dworshak Reservoir Mitigation</i> .....                                    | 42        |
| 6.2.      | <i>Clearwater Basin</i> .....   | 42        |
| <b>7.</b> | <b>PACIFIC LAMPREY.....</b>   | <b>42</b> |
| 7.1.      | NPTH.....   | 43        |
| <b>8.</b> | <b>CONTACTS.....</b>  | <b>44</b> |
|           | <i>Appendix 1. Parental Based Tagging</i> .....                               | 45        |
|           | <i>Appendix 2. 2013 Snake River Kelt Reconditioning Project Summary</i> ..... | 46        |
|           | <i>Appendix 3. 2013 Clearwater AOP Subgroup Meeting Notes</i> .....           | 47        |

## CLEARWATER BASIN ANNUAL OPERATING PLAN (AOP) 2013

Version 4/3/2013 12:26 PM

(Each section lists a contact for additional information, coordination, or notification – contact information is listed in Section 8, pg. 44)

### 1. STEELHEAD

The annual adult return goal for Dworshak National Fish Hatchery (DNFH) is 20,000 steelhead back to the Clearwater River. The annual adult mitigation goal for Clearwater Fish Hatchery (CFH) is 42,000 steelhead. All broodstock for DNFH is collected at DNFH and totals up to 2,400 adults annually. Broodstock for CFH programs is collected at DNFH (approximately 540 adults) and from adult returns to the SF Clearwater River (approximately 200 adults). Additional details are listed in the pertinent sections below.

#### 1.1. Brood Year 2012 Steelhead

##### 1.1.1. DNFH

DNFH collects broodstock to meet B-Run Steelhead production goals for the its own program, the CFH 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 February 1, 2013 there were a total of 2.16 million steelhead on station, averaging 140 to 185 mm total length, depending on take, 8.9 fpp. BY 12 STT were reared in 55 Burrows Ponds. Sample counts are performed monthly on representative ponds. **Nate Wiese / Tom Tighe**
- Projected release – We plan to release fish in mid-April, 2013. DNFH expects to release 1.2 million steelhead on-site and 900K off-site. Off-site releases are currently constrained due to weight restrictions on the Dworshak bridge. Tractor-trailers are limited to 52,000 pounds gross vehicle weight. The Army Corps of Engineers (ACOE) tankers can only

haul 1/3 the normal capacity of water and fish over the bridge and must be re-filled once across the bridge to meet the weigh restriction. The off-site release includes 200K un-clipped steelhead. All unclipped steelhead will be released in Lolo Creek at El Dorado site April 15<sup>th</sup>- 17<sup>th</sup> depending on snow conditions using both ACOE trucks and two trucks from Nez Perce Tribal Hatchery (NPTH). If snow conditions do not permit release from April 15<sup>th</sup> to 17<sup>th</sup> into El Dorado Creek, 140K unclipped smolts will instead be released at that time into the South Fork Clearwater River 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. If 140K fish are released at Meadow Creek, the remaining 60K will be released the week of April 28<sup>th</sup> via NPTH trucks. Average total length at release is estimated at 200 mm (5.8 fpp) (**Table 1**). *Nate Wiese/ Mark Drobish*

- 1.1.1.2. Fish health status – IHNV occurred at the 34.2% rate in the BY 2012 adults. Gas bubbles were seen in the gills of fish during late summer. No reuse was used during BY 12 STT rearing. A 60 fish sample will be tested for viral, bacterial, and parasitic pathogens prior to release. *Marilyn Blair*
- 1.1.1.3. M&E – Six CWT groups ranging from 20K to 40K each were tagged for system contribution and early return groups during marking operations in August and September 2012. Thirty days post tagging 1,000 fish from each CWT-tagged pond were checked for tag retention (ex. BY12 = 92% to 99%). Thirty thousand five hundred PIT tags were inserted in December 2012 and January 2013; 1,500 for the Smolt Monitoring Program, 9,000 for the Comparative Survival Study, and 20,000 for DNFH evaluation. Dead fish recovered from ponds containing PIT tagged fish are scanned for tags and the ponds are swept with magnets to recover shed tags. Sample length and weights were collected at the time fish were ponded, during PIT tagging and pre-release to monitor growth and condition. PIT tag records will be used to estimate survival and travel time to the ocean post-release. *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 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 online ([www.ptoccentral.org](http://www.ptoccentral.org)). Arrays are located on SF Clearwater (Site Codes SC1 and SC2) and Lolo Creek (LC1 and LC2). *McLain Johnson*
- 1.1.1.5. Research Requests – FPC requested 1,500 steelhead be PIT tagged for the Smolt Monitoring Program. For 2013 releases 9,000 steelhead were PIT tagged for the Comparative Survival Study (CSS). *Chris Peery*

## 1.1.2. CFH

*Original design memorandum shows the production for CFH may be as high as two million steelhead smolts; however, the annual production target has been*

*reduced due to limited water availability and to provide more rearing space for Chinook salmon. Historically, the steelhead smolt releases from CFH have ranged from approximately 600K to 1.04 million. Currently the release goal for CFH 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. Currently, DNFH provides approximately 540 adults to meet egg take goals for this program. Additionally, 200 adults are captured in the SF Clearwater River by anglers for use as broodstock in an attempt to develop a locally adapted broodstock for the SF program.*

- 1.1.2.1. Production status / projected release - The estimated number of BY12 steelhead to be released in the spring of 2013 is 958,817. This includes 469,820 AD-clip, 143,823 AD/CWT, 153,411 No-clip/CWT and 191,763 No-clip into the lower SF Clearwater pursuant to the US v Oregon 2008-2017 Management Agreement (US v Oregon). IDFG will contact NPT (Sherman Sprague) to coordinate Newsome Creek releases (**Table 1**).  
***Malia Gallagher***
- 1.1.2.2. Fish health status – Brood Year 2012 For Egg Disease Certification, all females are sampled (individually) for viral replicating agents. Initial incubation of eggs for CFH occurs at DNFH. 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. ***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, 26,600 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. ***Carl Stiefel***

SF Clearwater Localized Stock Evaluation- South Fork Clearwater smolts will be released at Meadow Creek, the site of a proposed adult collection and holding facility. Similar to other production at CFH, smolts 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. PIT tagging is a cooperative effort between CSS and LSRCP (**Table 1**). *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.

1.1.2.5. Steelhead Adult Distribution – Radio telemetry – The Nez Perce Tribe will be inserting radio transmitters into adult steelhead on SF Clearwater to compare relative performance of natural and hatchery origin steelhead (e.g. spawner distribution). Working closely with co-managers (IDFG) local broodstock collection (see section 1.1.2.3) to collect adult steelhead, up to 85 radio transmitters will be inserted in late – February and early – March. Further, Nez Perce Tribe is working with tribal anglers who will assist in capturing adult steelhead for radio tracking and broodstock collection using traditional fishing methods. *McLain Johnson*

## 1.2. Brood Year 2013 Steelhead

### 1.2.1. DNFH

1.2.1.1. Projected adult return – Based on estimated return rates, the predicted steelhead return to DNFH rack in 2012-2013 is lower than average. As such, broodstock utilization has been maximized to the extent possible. We open the ladder to only capture what broodstock we need. *Chris Peery*

1.2.1.2. Ladder operation – The ladder was opened in the fall (2012) with collections by month (October 183 adults, November 118 adults, December 155 adults) for collection of early-return steelhead. Collection targets are generally 300 in October, 150 in November, and 150 in December. Fewer broodstock were collected this period due to concerns of limited broodstock. The Idaho Fish Health Center conducted lethal sampling of 30 adults SST on one occasion and non-lethal samples of 30 adult SST on three additional occasions from October through December, 2012, quantifying the prevalence of IHNV. 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 and avoiding weekend operation in the winter and spring of 2013 to prevent excess fish collection. This 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. *Nate Wiese/Tom Tighe*

- 1.2.1.3. Adult fish health – 79 males were injected with the hormone GnRHa prior to spawning, using the implant form, under INAD. This was to insure that there were enough males that were ripe during the 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 DNFH 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 10/22/2012 and for about every 2 weeks thereafter, 30 adults were sampled for IHNV. Tissues were collected for the first 2 weeks, but all further sampling was taken non-lethally by gill, mucus and fin collection. Positive detections to date include 3.3% positive for IHNV from samples collected on 12/20/12 and 3.3% positive from samples taken on 11/20/2012. Samples have not been taken since December 20, 2012. ***Marilyn Blair***
- 1.2.1.4. Adult out-planting/markings – Ladder opening for collection of spring returns is done as close as possible to spawning dates (Table 2). Any fish beyond what is needed for spawning will generally be returned to the river at the Hocus boat ramp. All released fish will be marked with a 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 (SGnRHa) will be disposed at the transfer station. In the spring, spawning efforts are with fresh fish collected via the DNFH 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. ***Nate Wiese / 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 DNFH, ~1.2 million green for CFH. 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. DNFH will also take ~1.3 million green for Magic Valley.

DNFH is cooperating with CRITFC and the Nez Perce Tribe (NPT) in a Kelt Reconditioning Project. NPT staff will air-spawn 160 females for the Kelt project. For 2013, SF Clearwater steelhead broodstock will be incorporated into the reconditioning program. Air-spawned fish are to be reconditioned and retained until the spring of 2014. However, depending upon survival, a portion of these fish may need to be released after four to six weeks in order to make room for steelhead kelts transferred from Lower Granite Dam. A portion of the surviving air-spawned fish will be euthanized to assess egg quality of reconditioned kelts. The remaining portion will be tagged and released. Co-managers will discuss and determine appropriate release locations for both DNFH ladder returns, as well as the SF Clearwater River broodstock Kelts. Average fecundity of air spawned fish has been estimated at 20% lower than kill-spawned fish. Hence, brood requirements for this takes are 80 females rather than 60 females. Also, Kelt broodstock is collected as close to spawning as possible so that kelts are in the best condition possible. 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. Culled eggs are provided to the Kelt Reconditioning Project or the Idaho Department of Fish and Game for sturgeon projects. See **APPENDIX 2** at the end of this document for a detailed summary of the Kelt reconditioning project. *Nate Wiese/Tom Tighe/Scott Everett/Brett Bowersox*

- 1.2.1.9. Incubation: DNFH 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 DNFH program. DNFH will incubate up to 1.2 million green eggs for CFH and 572,000 eyed eggs for Magic Valley Hatchery. If eyed-egg supplies are limited, DNFH may utilize IHN positive eggs from these two groups for on-station production. Once these eggs have reached the eyed stage, they will be transferred. *Nate Wiese/Tom Tighe*
- Nursery Rearing: DNFH will early-rear approximately 2.3 million steelhead in its nursery until the fish reach approximately 150 fpp during the spring and summer of 2013. *Nate Wiese/Angela Feldmann*
- Outside Rearing: Approximately 2.3 million steelhead will be moved from nursery tanks to outside burrows ponds from the end of May until September 1, 2013. Up to 54 Burrows ponds will be used for steelhead rearing; additionally the two Burrows ponds modified into mixed cell units will be utilized. Four Burrows ponds will be used to rear BY12 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 ponded at approximately 150K 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 Lolo Creek 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 fourth 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. *Nate Wiese / Angela Feldmann*

- 1.2.1.10. Juvenile Fish health - Upon ponding, juveniles will be monitored for any disease problems including 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 BY13 steelhead at DNFH are found in **Table 3**. The number of BY13 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 2013. *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 DNFH evaluation. *Carrie Bretz / Chris Peery*
- 1.2.1.13. Kelt M&E - An additional 150 steelhead kelts will be collected at Lower Granite Dam (LGR) and transferred to DNFH. Fish will be reared in conjunction with the air-spawned steelhead (section 1.2.1.8). These fish will be on-station from March through October. Surviving LGR transferred kelts will be tagged and returned to the Snake River below LGR. *Scott Everett*
- 1.2.1.14. Research Requests –
- Matthew Campbell, IDFG requested fin clip samples from all adult steelhead spawned at DNFH (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*
  - The NPT, CRITFC, and University of Idaho are continuing their research on steelhead Kelt reconditioning. Experiments involving treatments to reduce mortality and improve growth and rematuration, as well as sampling fish to measure physiological responses during reconditioning will be conducted on air-spawned steelhead, as well as

LGR transferred steelhead (see sections 1.2.1.8 and **APPENDIX 2**).  
**Scott Everett**

- Idaho Department of Fish and Game requested about 5 gallons of steelhead eggs from DNFH to be used in capturing sturgeon for research purposes. DNFH will provide culled and green steelhead eggs in the course of steelhead spawning. IDFG will disinfect these eggs by “freeze/thaw” method. Eggs will be picked up at the end of each spawning week by IDFG. **Don Whitney/Ray Jones**
- Dr. James Nagler from the University of Idaho requested eggs from 2 females and milt from 3 males for to examine fertilization success. This request is for March of 2013. **Ray Jones**
- DNFH has had requests from approximately 8 schools for Trout in the Classroom projects. These schools have requested a total of 2,000 eggs for these projects. The first request is for approximately 500 eggs and will be fulfilled with excess broodstock in February if available. The remaining requests are for March and will be filled if broodstock is available. **Nate Wiese/Ray Jones/Jeremy Sommer**
- Paul Heisey of Normandeau Associates, Inc. requested 1,000 adult steelhead for a study to investigate injury rate for fish that pass through turbines at McNary Dam. The request was denied by the DNFH Hatchery Evaluation Team (discussed below) due to the limited number of fish available. **Chris Peery.**

1.2.1.15. Hatchery Evaluation Team – Future Research requests will be vetted through the DNFH Evaluation Team utilizing the *Guidelines for Conducting Research and Evaluation Projects at DNFH*. The co-managers have requested formal input on the Hatchery Evaluation Team (HET) and will receive these requests for review. The team is comprised of:

- Ray Jones and Nate Wiese for the USFWS.
- Gary Byrne and Chris Sullivan for the IDFG.
- Becky Johnson, Jay Hesse, and Kent Hills for the NPT.
- Steve Yundt for LSRCP.

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

## 1.2.2. KNFH

1.2.2.1. Weir/trap operation - The adult trap will be opened early to mid-March 2013 for BY13 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. The trap start and end times may be adjusted this year due to possible low adult returns to the basin. 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; if a large truck is needed, we will contact NPT Mike Key for spring out-plants,. If trap numbers are low, we will use a 400 gallon tank in a one ton truck for 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 KNFH at this time. *Carrie Bretz / Chris Peery*

### 1.2.3. CFH

- 1.2.3.1. CFH – BY13 smolt release has been set at 843K including 333K for tribal supplementation **Table 3**. 1,206,000 green eggs are requested for CFH. **Table 2**. All spawning will occur at DNFH. Our expected first spawn date for CFH egg collection is March 12. 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 DNFH. All eggs from positive IHNV parentage will be culled at this point. At DNFH, the eggs will be shocked and then transferred to CFH 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. *Cassie Sundquist*
- 1.2.3.2. SF Clearwater Broodstock - In the spring of 2013 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 DNFH.
- Project Objectives
- Clearwater Regional staff will coordinate with anglers to collect a goal of 100 pairs of adults for spawning.

- CFH staff will operate transport trucks (two 1-ton transport trucks and an adult hauling tanker) to transport adults to DNFH.
- Adult holding and spawning will occur at DNFH 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 CFH for rearing.
- CFH will rear at minimum, 420,000 FTS in six raceways for out-planting to Meadow Creek on the SF Clearwater River.
- Pending availability of adult pairs in the fishery, CFH staff will implement a strategy to increase production of SF origin smolts by whole raceway groups. 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, DNFH 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**). *Cassie Sundquist*

1.2.3.3. Fish health – Each female spawned at DNFH (eggs to be reared at CFH) 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 CFH main incubation for rearing at CFH. 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.

*Doug Munson*

1.2.3.4. Planned juvenile marking & tagging, release sites – Marking plans for BY13 steelhead from CFH are found in **Table 3**. As fish are moved outside, they receive ad-clips and CWT's. Fish will remain there until they are full smolt size and age, at a maximum of 4.5 to 6.0 fish per pound. Raceways are loaded with approximately 50,000 -70,000 fish. In February, approximately 26,600 fish will be PIT tagged to evaluate juvenile emigration timing and survival from release to Lower Granite Dam for each release group and to estimate a combined adult escapement back to Lower Granite Dam which will be used to estimate SARs. This tagging is also a cooperative effort between CSS and LSRCP. PIT tags will be distributed across release groups in proportion to the release group size. *Carl Stiefel*

## 2. SPRING CHINOOK SALMON

*The total adult return goal for DNFH and CFH is 105,250 spring Chinook salmon (45,675 and 59,575 respectively). An adult goal of 5,200 was calculated for KNFH and 1,176 adults for the NPTH program. Broodstock needs for all facilities total 3,984 adults, specifically: 1,000 for DNFH, 600 for KNFH, 1,938 for CFH, and 446 for NPTH. Additional details are listed in the pertinent sections below.*

## 2.1. Brood Year 2011 Spring Chinook

### 2.1.1. DNFH

- 2.1.1.1. Production status - On January 1, 2013, there were approximately 1,380,000 BY11 spring Chinook averaging 30 fpp and 122 mm (4.8 inches) total length on station. At present, these fish are on schedule to meet the size-at-release requirements of 20 fish per pound. BY11 release numbers were increased by modifying raceway densities from 35,000 to 45,000 smolts per raceway. Corresponding to density increases, the flows to A-bank raceways have increased by 33% to 750 gallons per minute (gpm). B-bank raceway flows have been increased by utilizing re-use from A-bank to 750 gpm of re-use and 500 gpm of make-up water (1250 gpm total). *Jeremy Sommer/Nate Wiese*
- 2.1.1.2. Projected release – In late March or early April 2013, approximately 1,380,000 spring Chinook will be forced released from raceways (**Table 4**). Chinook will be released on two consecutive evenings from A and B banks with a number of environmental factors considered: flows, turbidity, and an increasing hydrograph to maximize survival during release and outmigration. *Jeremy Sommer/Nate Wiese /Ray Jones/ Nate Wiese*
- 2.1.1.3. Fish health – 17.2% of the adult SCS sampled were positive for IHNV. BY11 SCS have done well to date. Monthly monitoring samples for BKD are currently being taken. A pre-release exam of 60 fish will be sampled for viral and bacterial pathogens prior to release. *Marilyn Blair*
- 2.1.1.4. M&E - Approximately 120,000 DNFH stock were marked with CWT for system contribution monitoring. Thirty days post tagging 1000 marked fish from each coded-wire tag code were checked for tag retention (BY11 = 97 % to 99%). *Carrie Bretz / Ray Jones*
- 2.1.1.5. Research Requests – 52,000 DNFH spring Chinook salmon are PIT tagged by the FWS Columbia River Fisheries Program Office (Vancouver) for DNFH's contribution to the Comparative Survival Study (CSS). *Ray Jones*

### 2.1.2. KNFH

- 2.1.2.1. Production status - There are 686,804 KNFH stock spring Chinook fry at KNFH weighing 25,213 lbs., 4.96 inches or 126 mm long, at 27.2 fish/lb. (fpp). The Burrows ponds were put on Clear Creek water October 9, 2012. Chinook will be split from Burrow's ponds into raceways in February, 2013 if densities warrant. *Kent Hills*
- 2.1.2.2. Projected release - KNFH will direct release an estimated total of 650,000 Spring Chinook at 18-25 fpp in late March (**Table 4**). Two burrows ponds of smolts will be released a week early and 235,000 smolts from CFH will be put into these two ponds to acclimate them to Clear Creek. This is an effort to decrease the high stray rate to DNFH of the adults and enhance fishing opportunities above the North Fork. The remaining fish will be released the last week in March. *Kent Hills*
- 2.1.2.3. Fish health – 51.4% 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 KNFH 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 2013 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. CFH

- 2.1.3.1. Production status/transfer date/projected release – Planned releases of BY11 spring Chinook smolts are for 2,508,000 at an expected 20 fish per pound (125,400 pounds of fish). The final release number is determined by subtracting monthly fish loss from the inventory at the time of Ad clipping. BY11 Chinook were transferred to DNFH in August of 2011 due to the primary pipeline failure at CFH. These fish will be transported from Dworshak to their designated release sites. Burrows Pond 54 will be direct released from DNFH into the mainstem Clearwater the third week of April. Red River and Powell acclimation ponds will be watered up by the third week of March. 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. 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**). *Malia*

*Gallagher/Chris Shockman*

- 2.1.3.2. Fish health -

- Brood Year 2011 Powell Spring Chinook Broodstock: 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 CFH Chinook salmon program. Pre-spawning mortality was at 2.4% *Myxobolus cerebralis* was not detected in the 20 fish sampled.
- Brood Year 2011 Powell Juveniles: Steatitis was present but did not cause increased morbidity or mortality. Bacterial Kidney Disease was detected in these fish after they were transferred to DNFH. All Powell stock raceways were treated with Erythromycin (28 days, 100mg/kg/day) target dose. Rearing inspections – Quarterly inspections are performed by Eagle Fish Health Lab. Pre-liberation inspections – These inspections are performed by Eagle Fish Health

Lab within 30 to 45 days of release. (60 fish samples viral replicating agents, *Renibacterium salmoninarum*, Furunculosis, and WD).

- Brood Year 2011 S. F. Clearwater Spring Chinook Broodstock: 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 CFH Chinook program. Pre-spawning mortality was at 7.1%.
- Brood Year 2011 S. F. Clearwater Spring Chinook Juveniles: Steatitis was present but did not cause increased morbidity or mortality. Bacterial Kidney Disease was detected in these fish after they were transferred to DNFH. All South Fork Clearwater stock raceways were treated with Erythromycin (28 days, 100mg/kg/day) target dose. Burrows Pond 54 had epizootic levels of BKD and received one treatment of Aquaflor (10 days, 15mg/kg/day) target dose. All South Fork stock stock raceways including BP 54 were treated with Erythromycin (28 days, 100mg/kg/day) target dose. Rearing inspections – Quarterly inspections are performed by Eagle Fish Health Lab. Pre-liberation inspections – These inspections are performed by Eagle Fish Health Lab within 30 to 45 days of release. (60 fish samples viral replicating agents, *Renibacterium salmoninarum*, Furunculosis, and WD). **Doug Munson**

2.1.3.3. M&E - The fish are sampled monthly between the 25th and 28th of the month. During months of rapid growth, fish are sampled biweekly. Pound counts are taken to track fish growth and monitor if growth is following the annual growth projections. Length frequencies are taken three times during the final rearing cycle; during marking as fish are 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 2013, 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. In-ladder PIT tag arrays will be operated 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. **Brian Leth**

## 2.1.4. NPTH

- 2.1.4.1. Production status - As of January 31, 2013, there were 210,897 BY11 spring Chinook averaging 27 fpp on station at NPTH. These fish were transferred from CFH in September 2012, where they were spawned and early reared to roughly 5—75 fpp. Target size at release is 20 fpp. Mortalities have been normal to date.

Projected release – Prior to transfer and per the U.S. vs. Oregon Management Agreement, two-thirds of these fish were CWT'd only and the other one-third were CWT'd and adipose fin clipped. Tagging and clipping occurs at CFH by IDFG during early rearing. Tags are provided by the NPT.

*For 2013, a release of approximately 200,000 fish at 20 fpp (22.7 g) is planned (Table 5). The smolts will be released directly from the S channels into the Clearwater River volitionally from April 1 – 11, with the remainder forced out on April 12, 2013.*

One week prior to release, hatchery and/or M&E staff will take lengths and weights on up to 250 fish. **Steve Rodgers**

- 2.1.4.2. Fish health – To date, no fish health issues have been discovered within this production group. A pre-release fish health exam consisting of sixty fish is conducted by the IFHC at least three weeks prior to release. Bacteriology, virology and parasitic assays will be performed. Fish may be released early or with a shortened or no volitional release period if fish health, stream conditions or other environmental factors warrant an immediate release. In the event of an early release, the pre-release fish health exam will be completed as soon as possible. **Marilyn Blair**
- 2.1.4.3. M&E – These fish are 100% CWT'd, and 60K are also AD clipped. Up to 600 fish will be PIT tagged by NPTH M&E staff prior to release for SURPH survival to LGR. **Sherman Sprague/Steve Rodgers**

## 2.2. Brood Year 2012 Spring Chinook

### 2.2.1. DNFH

- 2.2.1.1. Production status – In July 2012, the co-managers requested an extra 2 million spring Chinook egg collection from DNFH to meet shortages at Rapid River fish hatchery. In September 2012, it became apparent that Rapid River Fish Hatchery had higher fecundity and returns than expected. As such, only 600,000 eyed eggs were transferred to Rapid River. DNFH transferred an additional 300,000 eggs to CFH to make up shortages caused by high BKD levels. This left approximately 1 million excess eggs at DNFH. In addition, DNFH agreed to take over the Selway Parr program from CFH in BY12 of 300,000 parr. On January 1, 2013, there were approximately 2.8 million DNFH stock eggs/sac-fry incubating at DNFH. In the spring of 2013, SCS fry at DNFH will be transferred directly from the egg trays into the A-bank of outside raceways. The A-bank has vacuum de-gassing capabilities to cope with the higher gas levels

observed in April and May over the past several years. A de-gassing project is underway to treat the river water at DNFH will be under construction this year. It is DNFH's intent to increase Chinook production since adult return goals are not met with current production levels.

DNFH is currently conducting a 3-year density study involving 1.47 million spring Chinook in the raceways to determine optimal densities to maximize adult returns. The resulting smolts will be direct released into the North Fork Clearwater. This study will utilize Parental Based Tagging to evaluate adult returns. Raceways will be ponded with either 45,000 or 65,000 juveniles (100 fpp) at marking in August 2013. Juveniles in excess of the study design will remain unclipped and will be released as parr into the Selway at Meadow Creek via NPTH transport trucks in September 2013.

The 300,000 Selway parr program will be released in September 2013 once the fish have reached approximately 100 fpp. These parr will be transported by Mike Key with NPT transport trucks. The transport truck will be de-watered to 1/3 full to cross the DNFH Bridge and be re-watered on the opposite side of the bridge. The DNFH staff has also tested a fish pump to move these parr 1000 feet across the station and under the railroad tracks if needed.

DNFH is planning to rear an additional 1 million spring Chinook smolts in 10 Burrows Ponds pending ACOE approval. Of these smolts, 400,000 will be released onsite, 300,000 will be released at Meadow Creek, and 300,000 will be released at Clear Creek. CFH will truck these smolts in March of 2014 to release sites.

***Jeremy Sommer/ Nate Wiese /Mark Drobish***

2.2.1.2. Fish health status – Adult IHNV prevalence was 7.5%. Eggs from seven females were recommended to be culled due to ELISA O.D. levels above the 0.250 cut off level. BY12 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 DNFH stock will be CWT in August, 2013 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 upriver vs. downriver releases. ***Carrie Bretz***

**2.2.2. KNFH**

2.2.2.1. Production status - KNFH stock BY12 spring Chinook were spawned at DNFH. After fertilizing and disinfection, the eggs were placed into heath trays and incubated at DNFH. At eye-up the eggs were shocked and enumerated. This was done so that excess eyed eggs could be shipped to Rapid River Hatchery because of a short fall in adult returns. At eye-up 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 38°F). Eggs were all hatched out by mid-December. *Kent Hills*

2.2.2.2. Fish health status - Adult IHNV prevalence was 14.3%. Eggs from 12 females were recommended to be culled due to ELISA O.D. values above the 0.250 cut off level. BY12 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). Adult monitoring for the ISS will continue, as will monitoring of the KNFH weir. Current plans are to CWT approximately 100,000 in August, 2013 for contribution (**Table 5**) and 15,000 KNFH smolts will receive PIT tags in January, 2014. At least 50,000 Chinook will not be AD clipped as per the US v Oregon agreement, all others will be AD clipped in July-August, 2013. *Carrie Bretz*

### 2.2.3. CFH

2.2.3.1. Production status – The proposed number of CFH fish to be allocated from brood year 2012 is 2.135 million smolts, 200k-220k pre-smolts for NPTH. Beginning with BY12 the 300k parr eggs were supplied from Powell broodstock and are being reared at DNFH. *Cassie Sundquist*

2.2.3.2. Estimated numbers/planned marking & tagging - All production Chinook are Ad clipped. Planned releases of BY12 Chinook are for 2,135,000 full term smolts 16-20 fish per pound, 200K presmolts to be transferred to NPTH in Sept 2013, 350K green eggs transferred to DNFH for the 300k Selway parr release. The NPT will transfer the Clearwater stock fish to NPTH site during September 2013. Prior to marking NPT will provide wire for 100% CWT and 33% AD clips. Red River and Powell acclimation ponds will be watered up and screens put in place by the third week of March each year. 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. 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. NPT contact for transport is Steve Rodgers (**Table 5**). *Cassie Sundquist*

2.2.3.3. Fish health status –

- Brood Year 2012 Powell Spring Chinook Broodstock: IHNV was detected in 16/60 of ovarian fluids and 30 fish sampled with kidney/spleen tissues. ELISA sampling detected 30 High (7.2%) out of 414 fish sampled. Eggs from the females with high ELISA values were culled from the CFH Chinook salmon program.
- Brood Year 2012 S. F. Clearwater Spring Chinook Broodstock:

IHNV was detected in 0/60 of ovarian fluids 0/30 of the kidney/spleen tissue samples. ELISA sampling detected 95 Highs (20.6%), out of the 461 females sampled. Eggs from females with high ELISA values were culled from the CFH Chinook salmon program.

- Brood Year 2012 DNFH Stock to Backfill CFH Programs:  
IHNV was detected in 138/469 of ovarian fluids. ELISA sampling detected 2 Highs (0.4%) out of 469 females sampled. Eggs from females positive for IHNV and with high ELISA values were culled from the CFH program.
- Brood Year 2012 Clear Creek Stock for Clearwater Program:  
IHNV was detected in 51/176 of ovarian fluids. ELISA sampling detected 2 Highs (1.1%) out of 176 females sampled. Eggs from females with positive IHNV and with high ELISA values were culled from the CFH program.
- 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
- Juvenile diagnostics on demand.
- Juvenile 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 2014, approximately 68,400 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**).

Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail).

***Brian Leth***

## 2.2.4. NPTH

2.2.4.1. Production status – As of January 31, 2013 there are 627,683 BY12 sac-fry on hand at NPTH to meet production goals listed in **Table 5**:

- 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 (Selway) in June.

Based on a 16% eyed egg to release mortality (five year average), NPTH will not meet the 400,000 parr release into Meadow Creek in 2013 with current production at NPTH. To fully meet this target, up to 100,000 fry will be provided by DNFH for this program, to add to the projected 300,000 NPTH will have for this release. NPTH will release the 300,000 in late June or early July by truck directly into Meadow Creek at Slims Camp. NPT drivers will transport and release the fish from DNFH into Meadow Creek at Slims Camp in early September. None of these fish will not be tagged or clipped, however PBT may be utilized to determine origin on returning adults for both the NPTH and DNFH provided fish that make up this release.

The NPT will transfer Clearwater stock BY2012 spring Chinook from CFH to NPTH during early September 2013 (section 2.2.3.2). Fish will be reared in the NATURES “S” channels or linear raceways until late-March or early-April 2014 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 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 BY12 smolts being reared at CFH for release from NPTH in 2014, NPT M&E staff will coordinate with IDFG for CWT and ad-clipping to occur at CFH. These fish will be 100% CWT'd, and approximately one-third will also be adipose fin clipped. **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, 2013. 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, 2013. 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 2013. This will include up to 100,000 parr received from DNFH. NPTH drivers will be responsible for transport and release of both groups of fish. Those reared at NPTH will be released in late June or early July. Those reared at DNFH will be released in August or September, dependent on fish marking, density and other factors at DNFH. Prior to release, 5,000 fish reared at NPTH will receive a PIT tag. Both groups will be transported and direct stream released into the Selway River at “Racetrack”, on the opposite bank of the mouth of Meadow Creek. Target size at release is 117 fish per pound (3.9 grams) (**Table 4**). *Steve Rodgers*
- 2.2.4.4. Fish health status – 35.4% of the fish sampled were positive for IHNV. Eggs from 8 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, 2012 all BY2012 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 2013 Spring Chinook

*Spring Chinook coordination will begin sometime in the spring of 2013, generally in advance of trapping season. Weekly conference calls scheduled for Tuesdays and standardized report tables 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. DNFH

*Approximately 1,000 Chinook are needed for broodstock for the DNFH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.8 million green eggs and 1.05 million smolts released to meet current US v Oregon production goals. Smolts in excess of 1.05 million are produced specifically toward meeting the LSRCP adult return goal of 9,135 adults to the river above Lower Granite Dam.*

- 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 2013 DNFH spring Chinook return to the Clearwater River will just cover broodstock needs (**Table 6a**). *Chris Peery*
- 2.3.1.2. Ladder operation – Ladder Operation will be maximized to ensure broodstock collection. The co-managers plan to trap as many spring Chinook as possible to ensure that broodstock needs are met at all Clearwater facilities. As such, DNFH will continue trapping beyond its 1,000 fish brood needs at the direction of the co-managers. *Ray Jones*
- 2.3.1.3. Adult out-planting / distribution plans – **Table 7a** lists the prearranged streams to receive adult spring Chinook salmon. No outplanting is planned from DNFH due to low adult returns. *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 is 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. *Nate Wiese/Mark Drobish/Jeremy Sommer*
- 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. Genetic samples are also collected from all spawned adults to develop the Parentage Based Tagging (PBT) baseline (see Appendix 1 for detail). *Carrie Bretz/Brian Leth*
- 2.3.1.6. Spawning plans – DNFH will spawn 400-600 females for its program and 300-400 females for KNFH'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.

*Nate Wiese/Jeremy Sommer*

- 2.3.1.7. Egg Incubation – All eggs taken for KNFH will be incubated at DNFH until eye-up, and then they will be shocked, enumerated and shipped to KNFH for final incubation. DNFH stock eggs will be incubated at DNFH. 350,000 green eggs will be received from CFH (Powell Stock) for the Selway Parr program. *Kent Hills*
- 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. *Nate Wiese*

## 2.3.2. KNFH

*A total of 800 broodstock spring Chinook are trapped at KNFH annually. Approximately 600 Chinook are needed for broodstock for the KNFH spring Chinook salmon mitigation program. This number includes jacks and accounts for pre-spawning mortality. This brood level produces 600,000 smolts for the KNFH program at an average 80% eyed egg-to-smolt survival. An additional 200 broodstock are also collected to provide for the IDFG release of 235,000 smolts in Clear Creek.*

- 2.3.1.1. Projected adult returns – Based on 2013 tribal and sport harvest data, rack returns, and ocean conditions during emigration; the 2013 forecasted return for KNFH spring Chinook to the Clearwater River is 6,541 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 KNFH will meet broodstock needs. Additionally, given the agreement for backfilling KNFH broodstock, IDFG and the NPT will likely open sport and tribal fisheries in the Middle Fork Clearwater River area in the spring of 2013. This will be updated in-season as dam counts of PIT tagged adults update the estimates. *Kent Hills*
- 2.3.2.1. Trap operation – Trap will be opened for Chinook collection around the 15<sup>th</sup> of May until warm water temperatures dictate its closure. With the completion of the adult portion of the ISS study in 2012, there is no restriction on releasing adults above the weir specific to the ISS study protocol. Returning adults collected for broodstock will be transported to DNFH for holding until spawning. *Carrie Bretz*
- 2.3.2.2. 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 KNFH. Out-

planting will be coordinated between Mike Key (NPT) and Carrie Bretz (FWS). All adults out-planted from KNFH 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, 208-621-2126).

- 2.3.2.3. Adult M&E – Returning adults are measured and examined for gender, various clips, tags, and marks then designated as broodstock or natural release. With the completion of the adult portion of the ISS study in 2012, the restriction on releasing adults above the weir specific to the ISS study protocol is no longer in place. **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**

- 2.3.2.4. Spawning plans – KNFH spring Chinook BY 13 adult broodstock will be kept at DNFH. 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**
- 2.3.2.5. Egg incubation – BY13 KNFH stock (780k) eggs will be incubated at KNFH. The new egg incubation recirculation system will be utilized. BY 2013 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**
- 2.3.2.6. 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**
- 2.3.2.7. Communication – FWS puts out weekly spawning reports and weekly return reports, and annual spawning and adult return reports are also produced.

### 2.3.3. CFH

*Approximately 1,938 Chinook are needed for broodstock for the CFH spring Chinook salmon program. This number includes 796 for Powell, 942 for the SF program, 200 for the Clear Creek 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.*

- 2.3.3.1. Projected adults returns – IDFG pre-season forecast of spring Chinook returning from CFH releases is 2,638 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 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, Powell and Red River weirs. The Crooked River weir and trap will be installed for steelhead trapping in March and will remain in operation throughout Chinook trapping season. The Red River weir will be installed but will not be operated for steelhead trapping. The Red River weir will be operated for Chinook trapping season in May. Powell trap will be installed in late May or early June. Trapping operations will continue until after September 1 and five consecutive days of zero fish are trapped. Proposed adult needs will be approximately 969 females (398 Powell, 471 Red River, 100 Clear Creek) and 969 males (398 Powell, 471 Red River, 100 Clear Creek) for CFH 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**. *Malia Gallagher*
- 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. *Malia Gallagher*
- 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. **Malia Gallagher**
- 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. BY13 production targets will be approximately 2.135 million. FTS, 200k Pre-smolts transferred to NPTH in September 2014 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 2014. **Malia Gallagher**
- 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. NPTH

*In 2013, approximately 446 spring Chinook salmon adults are needed for broodstock for the NPTH spring Chinook program. This number does not include jacks (goal for jacks is less than 5% contribution to production annually). This number accounts for pre-spawn holding mortality estimated at 8% (NPTH trapped fish only), BKD culling estimated at 4%, and an eyed egg to release mortality of 16%, with a 10% cushion. These percentages are based on the most recent five-year average for each performance measure. 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).*

- 2.3.4.1. Projected adult returns – Total Projected adult returns estimates to NPTH weirs/traps is 727 adults. Estimation for the NPTH trap is 326. Projected returns for Lolo and Newsome creeks are 291 and 110, respectively (**Table 6c**). 50 fish is the estimated adult return for Meadow Creek, however there is no broodstock collection there. Broodstock needs are: 108 adults for Lolo Creek, 54 adults for Newsome Creek, and 284 adults for Meadow Creek, Selway program. This broodstock needs assumes a 50:50 sex ratio. **Steve Rodgers/Sherman Sprague**
- 2.3.4.2. Trapping operations at NPTH – The adult ladder and trap at NPTH will be operated in 2013 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. In general, NPTH trapped fish will be first used to meet existing US v Oregon mandated production, then be utilized to backfill at other Clearwater Subbasin facilities to meet their US v Oregon mandated production, then as a last option be utilized for production above US v Oregon levels, pending comanager approval (**Appendix 3**). For 2013, the NPTH trap will be operated as follows:

1. Retain all adipose fin clipped adults.
2. Retain all adipose fin intact/CWT only adults.
3. Release all natural (no clips or wire) fish back into the Clearwater River at the Lenore boat launch.

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 DNFH 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 other Clearwater Basin hatcheries in the event they are short of broodstock. *Steve Rodgers*

- 2.3.4.3. Trapping operations at Lolo Creek – Trapping operations on Lolo Creek usually begins 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. One weir 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 Creek, during low return years, broodstock collection will have a very low priority. 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. When retained, trapped fish will be transported by NPTH staff from the weir sites to NPTH for holding and sexual maturation.

For 2013, the Lolo Creek weirs will be operated as follows (**Appendix 3**):

1. All adipose fin clipped adults will be retained and transported to NPTH by NPTH drivers for use in broodstock.
2. Release all adipose fin intact/CWT only adults above the weir.
3. Release all natural (no clips or wire) fish above the weir.

Trapping operations at Newsome Creek - Trapping operations on Newsome Creek usually begins 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. The weir on Newsome Creek is located at RKM 0.1, just upstream from its confluence with the S.F. Clearwater River. In an effort to encourage natural production in Newsome Creek, during low return years, broodstock collection will have a very low priority. In high return years, localized broodstock may be collected, at which time pass/keep ratios will be developed. The adult weir will also be used for escapement, estimating sex composition, age structure, return timing and genetic tissue sampling. When retained, trapped fish will be transported by NPTHC staff from the weir to NPTH for holding and sexual maturation.

For 2013, the Newsome Creek weir will be operated as follows (**Appendix 3**):

1. All adipose fin clipped adults will be retained and transported to Red River Facility by IDFG drivers for use as broodstock for their program.
2. Release all adipose fin intact/CWT only adults above the weir.
3. Release all natural (no clips or wire) fish above the weir. *Steve Rodgers*

*Rodgers*

- 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. 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). *Sherman Sprague*
- 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 tributary of Selway River), 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 examined when 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/CFH and all other interested parties. NPTHC 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 CFH 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 CFH 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, and beginning in 2013, the Crooked River Weir as adults begin to return from this program's releases. In the future, when broodstock collections at the Crooked River Weir allow this program to become self sufficient, broodstock will no longer be collected at the SF Salmon River by McCall Hatchery. Approximately 65 females and 65 males will be required for each 200k full term smolt allotment for the incremental increase to 600k to 1.0 million fish. 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 2011 Summer Chinook

##### 3.1.1. CFH

- 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. **Malia Gallagher**
- 3.1.1.2. Projected Release – In March of 2013 the projected release will be approximately 208,000 full term smolts and will be released directly from the Lower Crooked River trap site. **Malia Gallagher**
- 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 CFH 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 2013, 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). **Brian Leth**

### 3.2. Brood Year 2012 Summer Chinook

#### 3.2.1. CFH

- 3.2.1.1. Trapping – Summer Chinook were trapped at the South Fork of the Salmon trap operated by McCall Fish Hatchery. **Cassie Sundquist**
- 3.2.1.2. Spawning – Spawning occurred at the South Fork of the Salmon trap. One or two CFH staff traveled there and assisted with spawning and disease sampling procedures. They packaged the green eggs for direct transport to the CFH.
- 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 evaluated how well all stages of production adjusted to the increased 200K. All stages of production adjusted well to Option #1. Beginning with BY12 we moved to Option #2, the Selway parr production was moved to DNFH thus freeing up early and final rearing space to raise an additional 200k summer Chinook totaling 400k FTS. Rearing will be

limited to Option 2 of 400k FTS until all program recommendation are in place prior to proceeding to Option 3 and an increase to 600k 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 3.: 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 3. If we did experience aquaculture problems or infrastructure / personnel adjustments were not in place we would recommend repeating Year Two until we were able to address any problems that arose to reduce risk of fish loss or quality of fish health. *Cassie Sundquist*

- 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 2014, 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). *Brian Leth*

### 3.3. Brood Year 2013 Summer Chinook

*The CFH summer Chinook release goal is 400,000 smolts in 2015 from BY2013 spawning. Based on that release goal, the broodstock goal for this program in 2013 is 257 fish. Broodstock for this program will come from adults trapped at the Crooked River Weir and backfilled by adults trapped on the SF Salmon River by McCall Hatchery staff.*

### 3.3.1. CFH

- 3.3.1.1. Summer Chinook will be trapped at the South Fork of the Salmon River trap operated by McCall Fish Hatchery. 1-ocean and 2-ocean fish are destined to return to Crooked River trap in 2013. As agreed to by the comanagers (**Appendix 3**), the minimum release goal in 2015 is 200,000 fish from adults trapped at both locations. After all fisheries are closed on the SF Salmon River, additional fish will be trapped on the SF Salmon for this program up to the 400,000 release target. *Malia Gallagher*
- 3.3.1.2. Spawning – Spawning will occur at the South Fork of the Salmon trap. One or two CFH staff will travel there and assist with spawning and disease sampling procedures. They will package the green eggs for direct transport to the CFH. Adults trapped at Crooked River will be transported to CFH to be spawned. 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. *Malia Gallagher*
- 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 for BY13 are 400K FTS. *Malia Gallagher*
- 3.3.1.5. Fish Health – All females from the SF Salmon River will be sampled for viral replicating agents. 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 DNFH and KNFH. 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. Release goal for smolts reared at DNFH and released into Clear Creek is 300,000 smolts annually being acclimated at KNFH prior to release.*

#### 4.1. Brood Year 2011 Coho

##### 4.1.1. DNFH

- 4.1.1.1. Production status – There were 318,798 fish on hand (14,419 pounds, 22.11 fpp) at DNFH as of January 1<sup>st</sup>, 2013. **Mike Bisbee**
- 4.1.1.2. Projected transfer date/acclimation period at KNFH – Smolts will be transferred to KNFH Mid-February, 2013 for final acclimation. **Mike Bisbee**
- 4.1.1.3. Numbers/dates/marks & tags – 101,381 fingerling Coho were marked with a CWT (no AD clip) on July 20-22, 2012. Prior to release from KNFH, 5,000 coho 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 tags and CWT. 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, and on ladder counts at DNFH and KNFH. **Mike Bisbee**

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

- 4.1.2.1. Projected transfer – Smolts reared at Eagle Creek NFH will be transferred to KNFH mid-March, 2013 for final acclimation and direct release. **Mike Bisbee**
- 4.1.2.2. Projected direct release – March, 2013, smolts will be released from KNFH. A projected 500,000 smolts will also be transported from Eagle Creek NFH to Lapwai (275k) and Clear Creeks (275k) for direct release. **Mike Bisbee**
- 4.1.2.3. Numbers/dates/marks & tags – Coho were marked – 60,145 CWT only. 30,043 for release into Clear Creek and 30,102 for release into Lapwai

Creek. Prior to transfer from Eagle Creek 9,982 fish were PIT tagged – for release into Clear and Lapwai Creeks. PIT tags were 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 were 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 2012 Coho

### 4.2.1. DNFH

- 4.2.1.1. Production status – Coho recognized at Lower Granite Dam totaled 2,433 adults and 291 jacks in 2012. A total of 1,404 Coho salmon broodstock were collected consisting of 618 females and 786 males. Broodstock collections occurred at Lapwai Creek weir – 293 fish, at DNFH – 265 fish, and at KNFH – 846 fish. Fish excess to broodstock needs was 62. Fish released above the weir in Lapwai Creek were 98 Coho and 299 Fall Chinook Salmon (FCS). 17 fish were out-planted into the North Fork Clearwater River, 48 were out-planted into Sweetwater Creek, and 30 were out-planted into Mission Creek. A total of 509 females were spawned with 499 males. 39 females were culled; eggs from 470 Clearwater stock females were spawned and enumerated using a Van Gaalen egg sorter; percent eye-up was 80.74% and enumerated eggs totaled 1,216,289. As of January 22, 2013, there were 391,717 BY12 Live Eggs in five stacks in A-Bank at DNFH. *Mike Bisbee*

### 4.2.2. Eagle Creek

- 4.2.2.1. Egg transfer to Eagle Creek National Fish Hatchery  
December 2012 a total of 581,719 eyed eggs from returning Clearwater River adult Coho were transferred from DNFH to Eagle Creek National Fish Hatchery. These eggs will be reared to smolt stage and transported back to the Clearwater Basin for release in 2014. *Mike Bisbee*
- 4.2.2.2. Projected production – We anticipate Clearwater River Stock production will be 550,000 reared through spring 2014. (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 one female's eggs culled. Approximately 7.7% 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 KNFH if Bacterial Coldwater Disease is present and causing mortality, 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 2014. Approximately 550,000 (275,000 each stream) will be acclimated or direct stream released. **Mike Bisbee**
- 4.2.2.5. M&E – Current plans are to CWT 100,000 pre-smolts in July, 2013. 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 DNFH and KNFH. 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 2014 (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 DNFH and KNFH NFH, Lapwai Creek, Lyons Ferry Hatchery (LFH), NPTH. **Mike Bisbee**

### 4.3. Brood Year 2013 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 DNFH, KNFH, Lapwai Creek, LFH, and/or NPTH; however, of these locations, fish collected at KNFH, DNFH and Lapwai Creek will be prioritized for broodstock. Approximately 1,200 adults are necessary to meet broodstock goals.*

#### 4.3.1. KNFH

- 4.3.1.1. Weir/Trap operation – Weir operations started October 1, 2013 to trap adult Coho at KNFH. **Mike Bisbee.**
- 4.3.1.2. Adult transfers – Depending on adult return projection and estimated broodstock collection adult Coho trapped at KNFH weir or other sites will be transported to DNFH for holding and spawning. Adult hatchery steelhead incidentally trapped at the KNFH weir will be transported to the S.F. Clearwater and released by the NPT. **Mike Bisbee**
- 4.3.1.3. Adult out-planting – Once Coho broodstock goals are met, surplus Coho will be passed above the weir. **Mike Bisbee**
- 4.3.1.4. Coho spawning – All Coho spawning will take place at DNFH. The broodstock goal is to collect and spawn 550 females to provide eggs for both the DNFH and the Eagle Creek programs. Eggs for the DNFH group will be incubated and early reared at DNFH. Eggs for the Eagle Creek group will be incubated at DNFH to eye-up stage and transferred to Eagle Creek NFH in December for final rearing. **Mike Bisbee**

- 4.3.1.5. Adult M&E – Genetic samples will be 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 Lapwai, Sweetwater, and Mission Creeks following spawning for nutrient enhancement. **Mike Bisbee**
- 4.3.1.8. Juvenile M&E
- Smolt-to-adult survival based on weir monitoring in Clear Creek.
- 4.3.2. DNFH**
- 4.3.2.1. Ladder operation – The DNFH ladder will be operated during the fall of 2013 to trap early return steelhead. Adult Coho trapped during this time will be counted and put in Holding Ponds 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 – All spawning will take place at DNFH. **Mike Bisbee**
- 4.3.2.3. Adult out-planting – Coho adults surplus to broodstock needs will be out-planted to Lapwai, Sweetwater, and Mission Creeks. **Mike Bisbee**
- 4.3.2.4. Eagle Creek NFH – When Clearwater broodstock can provide eggs for the Eagle Creek smolt program, these eggs will be incubated at DNFH 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 DNFH and KNFH, Lapwai Creek, LFH, NPTH. **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, 2013 to trap Coho broodstock below the car bridge and upstream from 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 passed above the weir. **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 DNFH and KNFH, Lapwai Creek, LFH, NPTH. **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

*The fall Chinook production program is a complex and highly integrated artificial program for Snake River fall Chinook implemented through the LSRCF program, the IPC Hells Canyon Settlement Agreement, and the Columbia Basin Fish and Wildlife Program. The basic intent of the program is to assist with the recovery of Endangered Species Act (ESA)-listed Snake River fall Chinook, mitigating for impacts of the mainstem hydrosystem dams, and returning abundance of salmon to historic levels. Both short and long-term adult return goals for this program are identified in the Snake River Fall Chinook Management Plan. Snake River fall Chinook production is mandated in the 2008-2017 U.S. vs. Oregon Management Agreement (Table 9). Fall Chinook salmon production in the Clearwater River occurs through two programs – the Fall Chinook Acclimation Project (FCAP) and NPTH. Beginning with the 2012 trapping season, activities for FCAP are covered under ESA Section 10 Permit No. 16607, and Permit No. 16615 for NPTH.*

### 5.1. Brood Year 2011 Fall Chinook

#### 5.1.1. FCAP – 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 LFH. Big Canyon facility is operated by the Nez Perce Tribe as part of 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 LSRCF mitigation goal of 18,300 adults to the project area*

- 5.1.1.1. Production status – Approximately 155,000 yearlings are being reared at LFH for transfer to the Big Canyon acclimation facility on March 6-8, 2013. **Mike Key**
- 5.1.1.2. Projected release – Target release will be 150,000 yearlings at 10 fpp on April 17, 2013 (**Table 10**). Fish are 70,000 CWT and ad clipped and 80,000 CWT-only (**Table 11**). 3,000 will be PIT tagged (see M&E section below). **Mike Key**
- 5.1.1.3. Fish health – Import permit sampling was conducted on Feb. 6, 2013 and is still being processed. Monitoring samples for BKD were taken weekly and a 60 fish sample will be 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 is collected as the fish are being released. We sample 500 fish from each raceway at LFH for coded wire tag and adipose fin clip retention 21 days after tagging/marking is completed. We will PIT tag 3,000 yearlings to estimate survival, migration rate and timing through the FCRPS. PIT tagging will occur at LFH. 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 2012 Fall Chinook

### 5.2.1. FCAP – Big Canyon Facility

- 5.2.1.1. Production status – Approximately 500,000 sub-yearlings are being reared at LFH for transfer to the Big Canyon acclimation facility on May 2-3, 2013. *Mike Key*
- 5.2.1.2. Projected release – Target release is 500,000 sub-yearlings at 75-50 fpp on May 23, 2013 (**Table 10**). A group of 100,000 fish are CWT / ad-clipped and 100,000 CWT-only for evaluation – the remaining fish are unmarked. 3,000 will be PIT tagged (**Table 11**). *Mike Key*
- 5.2.1.3. Fish health - Import permit sampling will be done in April. A 60 fish sample will be 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 3,000 sub-yearlings to estimate survival, migration rate and timing through the FCRPS. 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. NPTH

*Nez Perce Tribal Hatchery Complex (NPTHC) is authorized to produce 1.4 million sub-yearling fall Chinook juveniles annually. Target releases are 500,000 acclimated 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 January 31, 2013, there are 1,675,937 fall Chinook eggs/fry on hand at NPTH. *Steve Rodgers*
- 5.2.2.2. Projected release – 1.625 million sub-yearlings.
- NPTH: A release of 725,000 sub-yearlings into the Clearwater River at 50 fpp (9.1 g) is planned (Table 10). 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) (Table 11). The remainder of this release (425,000) 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 14, 2013. Hatchery or river conditions may warrant a shortened or no volitional release period.
- North Lapwai Valley: This facility was designed for and the program specifies a release of 500,000 sub-yearlings into the Clearwater River via Lapwai Creek in mid-June. However, warming water temperatures and decreasing flows in the creek in May have always warranted an earlier release to avoid high mortalities and 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. The release goal has been modified to accommodate this rearing challenge. For 2013, a release of 500,000 sub-yearlings at 80 fpp (9.1 g) into the Clearwater River is scheduled for early May, 2013 (Table 10). However, if flow, temperature and DO conditions allow, fish will be reared as long as possible toward meeting the original goal of release in mid-June at 50 fpp. Fish slated for final acclimation and release from North Lapwai Valley AF will be marked at NLV during transfer there from 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 (Table 11). 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.
- Cedar Flats: A release of 200,000 sub-yearlings into the Selway River at 50 fpp (9.1 grams) is planned (Table 10). 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 (**Table 11**). 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. 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 14, 2013.

Lukes Gulch: A release of 200,000 sub-yearlings into the S. F. Clearwater River at 50 fpp (9.1 g) is planned (Table 10). 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 (**Table 11**). 3,000 fish are PIT tagged for standard out migration monitoring. 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 14, 2013. **Steve Rodgers**

5.2.2.3. Fish health – Kidney samples were assayed by ELISA on all spawned females; eggs from 11 females were culled due to the culling down to the ELISA OD level of .200. 150 ovarian fluid samples, 60 tissues samples and 60 cranial samples were taken for assay. IHNV was found in 2.4 % 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.
- 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**

### 5.3. Brood Year 2013 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 be trapped at the fish ladder at NPTH. Trapping ratios between the two locations are determined annually by the comanagers. Activities involving trapping and collection of adult FCS for*

*broodstock are covered under ESA Section 10 Permit No. 16615 for NPTH, and No. 16607 for LFH, which provides fish for the FCAP program.*

- 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 2013 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. Any fish smaller than this cutoff length is 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 swimmers 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. NPTH

- 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.

Beginning in 2013 at NPTH, AQUIS will be used to anesthetize FCS adults during broodstock collection, pending approval under an INAD through the USFWS. Use of this product will allow for greater accuracy in data collection (when compared to live handling of fish) during processing of trapped fish. It will also allow for immediate return to the

river of unwanted fish if so desired, since no withdrawal period is required.

Volunteers to NPTH are typically held in the south adult holding raceway. The ladder will be closed when broodstock needs are met. Retained fish are 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 intends to trap only enough adults to meet program goals from both LGR and the NPTH ladder.

In the event production exceeds 110% of the program goals, surplus fry will be distributed amongst the FCS production releases as a first option. PBT integrity will be considered in determining how surpluses are distributed. Alternatively, they may be outplanted into the lower Clearwater River or utilized in some other way, pending comanager approval.

Out-planting – Adults excess to broodstock and not needed for coded-wire tag recovery or tribal subsistence may be outplanted to supplement natural production. Proposed outplants and any fish research requests will be considered and reviewed by the co-managers. No inoculated or injected fish will be outplanted. Instead they will be buried on site at NPTH. ***Steve Rodgers, Becky Johnson***

5.3.2.2. Spawning plans – Spawning at NPTH will occur every Tuesday beginning on October 22<sup>nd</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 may be returned to free-flowing reaches of the Clearwater River for nutrient enhancement, if they have not been injected or inoculated. **Steve Rodgers**

- 5.3.2.3. 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**
- 5.3.2.4. 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). **Becky Johnson, Steve Rodgers**
- 5.3.2.5. Adult M&E
- Redd surveys and carcass collection. Scales and genetic samples taken, hatchery/wild determination, scan for PIT tags and CWTs, along with all other biological information.
  - Volunteers to NPTH and fish hauled from Lower Granite Dam will be scanned for PIT tags and CWTs and scales and genetics will be taken on all spawned fish and mortalities, along with all other biological information. **Bill Arnsberg, Jay Hesse**
- 5.3.2.6. Fish health – Every adult female will be sampled individually for BKD with ELISA. Up to 150 ovarian fluid samples (3 pool) will be sampled for

viruses. An additional 60 tissue samples will be taken for 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*

- 5.3.2.7. Communication – NPTH produces monthly production and pathology reports, and both an annual operation plan and annual operation report for BPA and the co-managers. Fish Research produces quarterly and annual reports to BPA. *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. *Cassie Sundquist / Joe DuPont/Tod Sween*

### 6.2. Clearwater Basin

Until 2009, IDFG annually stocked approximately 50,000 (3,300 lbs) of Kamloops rainbow trout from LFH 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 LFH 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 CFH 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 2013 CFH is scheduled to release approximately 117,500 catchable rainbow trout. *Cassie Sundquist*

## 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. NPTH**

On November 6, 2012 NPT Fisheries staff collected 150 adult Pacific lampreys from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) South Fork Walla Walla River holding site for transport back to the holding tanks at NPTH. These fish were actively trapped by CTUIR staff earlier in 2012 at the Bonneville, The Dalles, and John Day dams on the main stem Columbia River during the summer lamprey runs. All 150 lampreys were previously injected with Oxytetracycline (OTC) by CTUIR staff as a prophylaxis against Furunculosis. On December 3 and 12, 2012 another 42 fish (8 lamprey from the east ladder, and 34 from the collection channel) were transported from The Dalles Dam. These two groups of fish were injected with OTC by NPT staff on December 4 and 13. Lamprey adults are being held over the winter months at NPTH. NPT plans to out-plant these adults during April-June 2013 in the South Fork Salmon River and in Lolo, Orofino, Newsome, and Little Canyon creeks in Idaho and Asotin Creek in Washington, as well as the Wallowa River in Oregon, to spawn naturally. Prior to release a subset of these fish may be tagged for telemetric tracking. Genetic samples are collected by NPT staff for later analysis. *Tod Sween*

## 8. CONTACTS

| Agency | Name              | JobTitle  | BusinessPhone  | EmailAddress   |
|--------|-------------------|---|----------------|--|
| ACOE   | Ann Setter        | Lead Fishery Biologist                            | (509) 527-7125 | <a href="mailto:ann.l.setter@usace.army.mil">ann.l.setter@usace.army.mil</a>       |
| ACOE   | Greg Parker       | Dworshak Dam Operations Project Manager           | (208) 476-1251 | <a href="mailto:greg.a.parker@usace.army.mil">greg.a.parker@usace.army.mil</a>     |
| ACOE   | Ken Fone          | Fishery Biologist                                 | (208) 527-7140 | <a href="mailto:kenneth.r.fone@usace.army.mil">kenneth.r.fone@usace.army.mil</a>   |
| IDF&G  | Brett Jenkins     | CLWR Hatchery SCS                                 | (208) 476-3331 | <a href="mailto:brett.jenkins@idfg.idaho.gov">brett.jenkins@idfg.idaho.gov</a>     |
| IDF&G  | Brian Leth        | Fisheries Biologist                               | (208) 465-8404 | <a href="mailto:brian.leth@idfg.idaho.gov">brian.leth@idfg.idaho.gov</a>           |
| IDF&G  | Carl Stiefel      | Fisheries Regional Biologist                      | (208) 465-8404 | <a href="mailto:carl.stiefel@idfg.idaho.gov">carl.stiefel@idfg.idaho.gov</a>       |
| IDF&G  | Cassie Sundquist  | Clearwater Hatchery Manager                       | (208) 476-3331 | <a href="mailto:csundquist@idfg.idaho.gov">csundquist@idfg.idaho.gov</a>           |
| IDF&G  | Chris Sullivan    | Hatchery Chinook Evaluation Biologist             | (208) 465-8404 | <a href="mailto:Chris.sullivan@idfg.idaho.gov">Chris.sullivan@idfg.idaho.gov</a>   |
| IDF&G  | Don Whitney       | Clearwater Region Harvest Biologist               | (208) 799-5010 | <a href="mailto:donald.whitney@idfg.idaho.gov">donald.whitney@idfg.idaho.gov</a>   |
| IDF&G  | Doug Munson       | Anadromous Fisheries Pathologist                  | (208) 939-2413 | <a href="mailto:doug.munson@idfg.idaho.gov">doug.munson@idfg.idaho.gov</a>         |
| IDF&G  | Gary Byrne        | Production - Boise                                | (208) 287-2778 | <a href="mailto:gary.byrne@idfg.idaho.gov">gary.byrne@idfg.idaho.gov</a>           |
| IDF&G  | Jerry McGehee     | Clearwater Hatchery Complex Manager               | (208) 476-3331 | <a href="mailto:jmcegeee@idfg.idaho.gov">jmcegeee@idfg.idaho.gov</a>               |
| IDF&G  | Joe DuPont        | Clearwater Region Fishery Manager                 | (208) 799-5010 | <a href="mailto:jdupont@idfg.idaho.gov">jdupont@idfg.idaho.gov</a>                 |
| IDF&G  | Malia Gallagher   | Clearwater Hatchery Manager                       | (208) 476-3331 | <a href="mailto:malia.gallagher@idfg.idaho.gov">malia.gallagher@idfg.idaho.gov</a> |
| IDF&G  | Matt Corsi        | Regional Fishery Biologist                        | (208) 799-5010 | <a href="mailto:matthew.corsi@idfg.idaho.gov">matthew.corsi@idfg.idaho.gov</a>     |
| IDF&G  | Phil Mamer        | Fisheries Pathologist Supervisor                  | (208) 939-2413 | <a href="mailto:phil.mamer@idfg.idaho.gov">phil.mamer@idfg.idaho.gov</a>           |
| IDF&G  | Sam Sharr         | Anadromous Fisheries Coordinator                  | (208) 334-3791 | <a href="mailto:ssharr@idfg.idaho.gov">ssharr@idfg.idaho.gov</a>                   |
| IDF&G  | Scott Putnam      | SMP/ISS Screw Trap monitor                        | (208) 799-3475 | <a href="mailto:scott.putnam@idfg.idaho.gov">scott.putnam@idfg.idaho.gov</a>       |
| LSRCP  | Steve Yundt       | LSRCP Research Program Coordinator                | (208) 378-5227 | <a href="mailto:steve_yundt@fws.gov">steve_yundt@fws.gov</a>                       |
| NPT    | Aaron Penney      | NPTHC Supervisor                                  | (208) 621-3504 | <a href="mailto:aaronp@nezperce.org">aaronp@nezperce.org</a>                       |
| NPT    | Becky Johnson     | DFRM Production Director                          | (208) 621-4629 | <a href="mailto:beckyj@nezperce.org">beckyj@nezperce.org</a>                       |
| NPT    | Bill Annsberg     | NPTH FCS Evaluation Project Leader                | (208) 621-3578 | <a href="mailto:billa@nezperce.org">billa@nezperce.org</a>                         |
| NPT    | Bruce McLeod      | DFRM Production Hatchery Coordinator              | (208) 621-4628 | <a href="mailto:brucem@nezperce.org">brucem@nezperce.org</a>                       |
| NPT    | Carl East         | NPTHC Production Monitoring Biologist             | (208) 621-3503 | <a href="mailto:carle@nezperce.org">carle@nezperce.org</a>                         |
| NPT    | Dave Statler      | DFRM Resident Fish Director                       | (208) 621-3575 | <a href="mailto:daves@nezperce.org">daves@nezperce.org</a>                         |
| NPT    | Jason Vogel       | DFRM Research Deputy Director                     | (208) 621-3602 | <a href="mailto:jasonv@nezperce.org">jasonv@nezperce.org</a>                       |
| NPT    | Jay Hesse         | DFRM Research Director                            | (208) 621-3552 | <a href="mailto:jayh@nezperce.org">jayh@nezperce.org</a>                           |
| NPT    | Jeremy Sommer     | DNFH Bio Production                               | (208) 476-3366 | <a href="mailto:Jeremy_Sommer@fws.gov">Jeremy_Sommer@fws.gov</a>                   |
| NPT    | Kent Hills        | Kooskia Hatchery Manager - SRBA Coordinator       | (208) 926-4272 | <a href="mailto:kenth@nezperce.org">kenth@nezperce.org</a>                         |
| NPT    | McLain Johnson    | B-run Steelhead Evaluation Project Leader         | (208) 621-3572 | <a href="mailto:mclainj@nezperce.org">mclainj@nezperce.org</a>                     |
| NPT    | Mike Bisbee       | Coho Restoration Project Leader                   | (208) 621-4637 | <a href="mailto:Michaelb@nezperce.org">Michaelb@nezperce.org</a>                   |
| NPT    | Mike Key          | FCAP Project Leader                               | (208) 621-4633 | <a href="mailto:mikek@nezperce.org">mikek@nezperce.org</a>                         |
| NPT    | Scott Everett     | Steelhead Kelt Project Leader                     | (208) 621-4635 | <a href="mailto:scotte@nezperce.org">scotte@nezperce.org</a>                       |
| NPT    | Sherman Sprague   | NPTH SCS Evaluation Project Leader                | (208) 621-3585 | <a href="mailto:shermans@nezperce.org">shermans@nezperce.org</a>                   |
| NPT    | Steve Rodgers     | NPTHC Manager                                     | (208) 621-3502 | <a href="mailto:stever@nezperce.org">stever@nezperce.org</a>                       |
| NPT    | Tod Sween         | Trout Ponds Project Leader                        | (208) 621-3582 | <a href="mailto:tods@nezperce.org">tods@nezperce.org</a>                           |
| NPT    | Tui Moliga        | Coho Evaluation Biologist                         | (208) 790-6744 | <a href="mailto:tuum@nezperce.org">tuum@nezperce.org</a>                           |
| USFWS  | Andy Goodwin      | Fish Health Program Manager                       | (503) 231-6784 | <a href="mailto:andrew_goodwin@fws.gov">andrew_goodwin@fws.gov</a>                 |
| USFWS  | Angela Feldmann   | Fish Biologist/Information & Education Specialist | (208) 476-4591 | <a href="mailto:ngela_feldmann@fws.gov">ngela_feldmann@fws.gov</a>                 |
| USFWS  | Carrie Bretz      | DNFH Evaluation Biologist                         | (208) 476-7242 | <a href="mailto:Carrie_Bretz@fws.gov">Carrie_Bretz@fws.gov</a>                     |
| USFWS  | Chris Peery       | DNFH Evaluation Biologist                         | (208) 476-7225 | <a href="mailto:chris_peery@fws.gov">chris_peery@fws.gov</a>                       |
| USFWS  | Corie Samson      | IFHC Fish Pathologist                             | (208) 476-4160 | <a href="mailto:Corie_Samson@fws.gov">Corie_Samson@fws.gov</a>                     |
| USFWS  | Jack Christiansen | Aquaculture Engineer                              | (208) 476-4591 | <a href="mailto:Jack_Christiansen@fws.gov">Jack_Christiansen@fws.gov</a>           |
| USFWS  | Jill Olson        | Fish Biologist                                    | (208) 476-2238 | <a href="mailto:Jill_Olson@fws.gov">Jill_Olson@fws.gov</a>                         |
| USFWS  | Laura Sprague     | IFHC Wild Fish Health Survey Program Coordinator  | (208) 476-9500 | <a href="mailto:Laura_Sprague@fws.gov">Laura_Sprague@fws.gov</a>                   |
| USFWS  | Marilyn Blair     | IFHC Project Leader                               | (208) 476-7341 | <a href="mailto:Marilyn_J_Blair@fws.gov">Marilyn_J_Blair@fws.gov</a>               |
| USFWS  | Mark Bright       | Fish Biologist                                    | (208) 476-7886 | <a href="mailto:Mark_Bright@fws.gov">Mark_Bright@fws.gov</a>                       |
| USFWS  | Mark Drobish      | DNFH Manager                                      | (208) 476-4591 | <a href="mailto:Mark_Drobish@fws.gov">Mark_Drobish@fws.gov</a>                     |
| USFWS  | Mike Faler        | IFRO Project Leader                               | (208) 476-2240 | <a href="mailto:michael_faler@fws.gov">michael_faler@fws.gov</a>                   |
| USFWS  | Nate Wiese        | DNFH Assistant Hatchery Manager                   | (208) 476-3315 | <a href="mailto:Nathan_Wiese@fws.gov">Nathan_Wiese@fws.gov</a>                     |
| USFWS  | Ray Jones         | DNFH Evaluation Biologist                         | (208) 476-2239 | <a href="mailto:mailto:ray_jones@fws.gov">mailto:ray_jones@fws.gov</a>             |
| USFWS  | Speros Doulos     | Dworshak Complex Manager                          | (208) 476-4591 | <a href="mailto:speros_doulos@fws.gov">speros_doulos@fws.gov</a>                   |
| USFWS  | Tom Tighe         | Fish Biologist                                    | (208) 476-2269 | <a href="mailto:Tom_Tighe@fws.gov">Tom_Tighe@fws.gov</a>                           |

### Appendix 1. Parental Based Tagging

A novel approach for mass marking hatchery broodstock is parentage-based tagging. Parentage-based tagging (PBT) 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.

The exceptional advantage PBT has over mechanical tagging technologies is increased sample size. By genotyping all parental broodstock, every juvenile is “tagged” thereby vastly increasing the chances of encountering a tagged fish. The key to this technology ultimately working is the ability to sample all (100%) of the hatchery broodstock.

Eagle Fish Genetics Lab provides all ethanol vials and sampling equipment to the spawning facilities, but relies largely on existing hatchery or other program personnel to take fin tissue samples, record sex and record spawn/sample date. General sampling guidelines for hatchery staff include:

- Obtaining tissue samples (fin clips) from every adult hatchery steelhead and Chinook salmon that contributes to spawning in the Snake River basin (~6000 adult hatchery steelhead and ~10,500 adult hatchery Chinook salmon).
- Ensuring that all samples come from fresh, “live” tissue and that each sample is properly preserved until DNA extraction and free of contamination.
- Ensuring that every sample is properly labeled and inventoried.
- Ensuring that data/information from every fish sampled is recorded and tied to a field/hatchery sample number (sample/spawn date, take #, hatchery, sex, length, cross information, etc.) and that field/hatchery sample number is tied to a unique genetic (Progeny) number.

A specific sampling protocol includes:

1. Use forceps and scissors or a scalpel, remove a small amount of tissue:
  - a. fin tissue – about the size of your little finger nail (any fin will work, just make sure that it is free of fungus and that you are sampling “live” tissue)
2. Carefully wipe clean instruments with a Kimwipe or paper towel and rinse the instrument in ethanol or clean water between each sample.
3. Place tissue into 2 ml tubes with 100% non-denatured ethanol (blue cap tubes = males, red cap tubes = females), and store in a cool location. Store only one sample per sample tube. The ethanol-filled tubes and color-coded caps are provide by EFGL.
4. Label individual sample tubes with field number. Provide an excel data sheet with individual sample tube number, sex identification, and any other available data (length, field ID, pit tag ID, etc.).

If possible, record every individual cross by genetic sample number, sex and date.

## **Appendix 1. 2013 Snake River Kelt Reconditioning Project Summary**

### **Background and Goals**

As a strategy to improve survival of ESA-listed steelhead stocks in the Columbia Basin, NOAA Fisheries has identified actions to improve the productivity and abundance of steelhead Kelts in two Reasonable and Prudent Alternatives (RPAs) in the 2008 FCRPS Biological Opinion (BiOp). RPA #33 covers operations to benefit upper and middle Columbia River Stocks, and RPA #42 covers operations to benefit Snake River B-run Steelhead. RPA #42 includes implementation of Kelt reconditioning in the Snake River Basin, with the goal of improving the productivity of ESA-listed wild interior basin B-run steelhead, and research as necessary to accomplish this goal. NOAA's analysis indicates that a combination of Kelt reconditioning and other actions could increase the number of returning Snake River B-run steelhead spawners to Lower Granite Dam by about 6%, and that a Kelt reconditioning program in the Snake Basin may be critical to achieving this goal (Supplemental Comprehensive Analysis Steelhead Kelt Appendix- Bellerud et al. 2007). In practice, the goal of the program is to increase returns of wild adult female Snake River B-run steelhead to Lower Granite Dam by 180 fish (baseline 3000 adult females estimated in Bellerud et al. 2007).

An experimental-scale Kelt reconditioning project is being conducted at Dworshak by the Nez Perce Tribe (NPT) and the Columbia River Inter-Tribal Fish Commission (CRITFC), in collaboration with the University of Idaho and USFWS. This project includes both implementation and research components. The implementation component of the project involves collection, reconditioning, and release of wild B-run female steelhead Kelts to achieve the goal of RPA #42. The research component of the project involves air spawning and reconditioning of DNFH ladder returning hatchery-origin fish for use as an experimental model. These fish provide a unique and important research tool to address critical uncertainties and maximize the success of Kelt reconditioning programs throughout the Columbia Basin.

### **2013 Operations and Research**

Dworshak is cooperating with CRITFC and the NPT in a Kelt Reconditioning Project. NPT staff will air spawn 160 females for the Kelt program. These fish will be retained until the spring of 2014. A portion of the surviving fish will be euthanized to assess egg quality of reconditioned Kelts. The remaining portion will be tagged and returned to the Clearwater River. An additional 150 steelhead Kelts will be collected at Lower Granite Dam (LGR) and transferred to DNFH. Fish will be reared in conjunction with the air-spawned steelhead (section 1.2.1.8). These fish will be on-station from March through October. Surviving LGR transferred Kelts will be tagged and returned to the Snake River below LGR.

NPT/CRITFC/UI are continuing their research on steelhead Kelt reconditioning. Experiments involving treatments to reduce mortality and improve growth and rematuration, as well as sampling fish to measure physiological responses during reconditioning will be conducted on air-spawned steelhead, as well as LGR transferred steelhead. The release strategy for individual fish may be selected based on maturation status as determined by blood hormone levels.

**Appendix 2. 2013 Clearwater AOP Subgroup Meeting Notes**

2013 Clearwater AOP Subgroup Meeting  
 Lewiston IDFG Regional Office  
 February 5-6, 2013

ASSIGNMENT: After review, Becky Johnson will distribute these notes to the entire CLWR AOP group including the following meeting attendees: *Speros Doulos, Mark Drobish, Nate Weise, Ray Jones, Chris Peery, Marilyn Blair, Joe Oatman, Jay Hesse, Becky Johnson, Jason Vogel, Kent Hills, Jack Yearout, Steve Rodgers, Sam Sharr, Joe Dupont, Brian Leth, Jerry McGeehee, Cassie Sundquist, Gary Byrne, Matt Corsi, Don Whitney, Micheal Faler.*

**1. BY 11 spring Chinook**

- a. Burrow's pond 54 (some BKD mortality experienced) SCS go out after all other fish releases at DNFH and in Subbasin.
  - i. Treatments very effective – BKD almost no detections post treatment.
  - ii. Fish Health recommends release below NPTH. To avoid hauling stress, group concurrence to release directly from DNFH.
  - iii. Release third or fourth week of April after all other on-station releases are completed.

**2. BY 12 Spring Chinook**

- a. 235K spring Chinook from Clearwater (Dworshak for 2013 release) to Clear Creek/Kooskia
  - i. Kent Hills suggested the option to do a short acclimation of these fish at Kooskia Hatchery as an alternative to direct stream release into Clear Creek at bridge.
    1. ASSIGNMENT: Chris Peery and Kent Hills will look at PIT data to provide further information (e.g., comparative juvenile survivals to LGD, “stray” rates to DNFH or other places, etc.) for this suggestion for upcoming AOP meeting. Most importantly this additional acclimation should not impact rearing/acclimation of existing KNFH groups – which are very successful.
- b. DNFH current production is 2.7 M for 2014 releases.
  - i. 300K parr currently at DNFH to Selway at McGruder. Group must decide if they are released in June or August/September.
    1. Parr will be smaller at release in June from DNFH when compared to normal release from CFH in June.
    2. Parr will be similar size (100 fpp) in August/September from DNFH when compared to June release from CFH.
    3. NPT to confer internally and come back with recommendation.

FOLLOW UP: NPT recommendation is to wait and transport/release these parr in August/September when water temperatures cool. Mike Key will coordinate with Nate Weise on water temps, fish size, and transport timing.

- ii. 1.4 M DNFH SCS in raceways

1. Released on site.
  2. Standard mark strategy.
  3. Density comparison study.
    - a. Group agreed to 3 year commitment on this study.
      - i. DNFH standard SCS raceway production is 1.05 M annually.
      - ii. Study desires 1.47M production fish each year for on station release to fulfill study design (six raceways at 20K extra each). If strong fish returns, 1.47M production may be approved.
      - iii. Study absolutely needs 795K B bank production annually for on station release to fulfill study design. This study level can be met with standard 1.05M production annually.
      - iv. 52K on site releases for CSS PIT.
    - iii. NPTH will receive from DNFH and direct stream release up to 100K SCS parr into the Selway River at Racetrack in August. This group of fish is additional to the 2.7M smolt production listed above and will come from PBT lots/groups of fish being ponded for the density study into the raceways to keep the number of fish ponded consistent in each raceway.
      1. 100% unmarked/untagged.
      2. NPTH will report this group as part of NPTH Meadow Creek program release.
      3. Evaluations on this group will be separate and not considered part of NPTH Meadow Creek program.
    - iv. 1 M DNFH SCS in Burrow's ponds – co-managers agreed on allocation of this extra production:
      1. 400K on site release.
        - a. Part of Burrows versus raceways study.
        - b. 100% AD clip.
        - c. 60K CWT – part of 120K on station CWT allocation.
      2. 300K Clear Creek release.
        - a. 100% AD clip.
        - b. No CWT or PIT.
      3. 300K Meadow Creek SF Clearwater release.
        - a. 100% AD clip.
        - b. No CWT or PIT.
- c. ASSIGNMENTS:
1. √ Nate Weise/Jeremy Sommer and Chris Peery will determine if separation of 13 release groups by PBT is doable.

FOLLOW UP:Nate reports that PBT groups can only be divided into 200K lots...which means folks will need to determine if separate evaluation of releases from Clear Creek and Meadow Creek by PBT at Granite are important enough to propose changing the release #s.

2. Brian Leth will determine a minimum release group size for solid data analysis of returning adults sampled at LGR.
3. ✓ Jerry McGeehee will determine a trucking cost to haul 300K to Meadow Creek and 300K to Clear Creek from DNFH. Includes haul schedule for these groups.

FOLLOW UP:Jerry reports that trucking costs for these 600K will be approximately \$10,000. Steve Yundt tentatively indicated that LSRCP could afford to pick up that cost.

### 3. BY 12 Summer Chinook

- a. 400K BY 12 Summer Chinook currently at Clearwater Hatchery will be released at Crooked River weir as smolts in spring of 2014. “Acclimation” during transport.
  - i. In past, double the detection rate at LGR if fish released from weir versus somewhere further upstream. Led to decision to release this group at this site.
  - ii. ASSIGNMENT: Brian Leth and Jason Vogel will do a “quick check” on jack returns last year to confirm conversions occurred.
  - iii. ASSIGNMENT: Jerry McGeehee, Cassie Sundquist, Matt Corsi and Joe Oatman will recon possible alternative sites for releases beyond 2014.
    1. Still in lower canyon but above the weir.
    2. Hope to find alternative that voids stream freeze out and other environmental hazards.
  - iv. Joe Dupont suggests group start considering release locations for summer Chinook, to avoid conflicts with spring Chinook.

### 4. BY 13 Spring/Summer Chinook Clearwater programs

- a. Broodstock prioritization
  - i. All US v Oregon mandated production for all Clearwater Basin programs will be met prior to fulfilling proposed production increases.
  - ii. ASSIGNMENT: Joe Oatman and Sam Sharr will seek clarification from their respective policy groups about priority of fish recycling and collecting fish for backfilling Clearwater Basin hatchery programs at Rapid River for BY13. Feedback will occur at Spring Coordination meeting.
  - iii. DNFH will:
    1. Trap operation timing (open/closed) TBD pending additional information and AOP process.
      - a. Retain all AD clipped adults for broodstock.

- i. Meet US v Oregon mandated production for the facility first.
      - ii. Backfill for other hatchery programs to meet US v Oregon mandated production second.
      - iii. Evaluate in season whether to recycle or meet increased production broodstock needs third (In the case of Dworshak, if we decided to recycle, we just wouldn't open the gates).
    - b. Return all natural fish to Clearwater River.
  2. Adjust in-season as needed thru SCS coordination process.
  3. ASSIGNMENT: Kent Hills will request DNFH SCS trap operation history from FRO for discussion at Feb 14 AOP meeting. This information is requested to better understand broodstock trapping potential at the Dworshak ladder and its impacts to fisheries.
  4. ASSIGNMENT: Kent Hills and Nate Wiese will provide the comanagers with actual broodstock needs for: FOLLOW UP provided in Green
    - a. 1.05M release – 840 adults.
    - b. 1.47M release – 1,000 adults.
- iv. Kooskia (Clear Creek Weir) will:
1. Retain all AD clipped adults for broodstock.
    - a. Meet US v Oregon mandated production for the facility first.
    - b. Backfill for other hatchery programs to meet US v Oregon mandated production second.
    - c. Evaluate in season whether to recycle or meet increased production broodstock above US v Oregon production needs third
  2. Pass all natural fish (no AD clip or CWT) above the weir.
  3. Pass all adipose fin intact fish (CWT only) above the weir.
  4. Pass 10% of all adipose clipped jacks above the weir.
  5. ASSIGNMENT: Speros will check on if “1300 funding” can be secured for Kooskia Hatchery evaluations. This is because ISS is complete and there is currently no funding available within USFWS for evaluation of hatchery program.
- v. NPTH will:
1. Retain all AD clipped and adipose fin intact/CWT only adults for broodstock.
    - a. Meet US v Oregon mandated production for the facility first.

- b. Backfill for other hatchery programs to meet US v Oregon mandated production second.
      - c. Evaluate in season whether to recycle or meet increased production broodstock above US v Oregon production needs third
    - 2. Release all natural fish trapped back to Clearwater River.
    - 3. ASSIGNMENT: Jay/Jason will provide a detailed adult collection plan for the NPTH program for NPTH, Lolo, and Newsome traps.
    - 4. ASSIGNMENT: Steve will get baseline water quality data from Jerry M for Crooked River. Then get full spectrum water quality analysis done to see if Newsome Creek water may be having an effect on Newsome Creek trapped adult survival during holding at NPTH.
- 5. Post ISS weir management of spring/summer Chinook Clearwater programs**
  - a. BY 13 (low return year)
    - i. For ALL SF Clearwater weirs, meeting US v Oregon production is highest priority.
    - ii. Crooked River Weir (spring and summer Chinook)
      - 1. Spring Chinook: retain all AD clip adults and jacks (spring Chinook) and transport to Red River for broodstock.
      - 2. Summer Chinook:
        - a. Retain all AD intact/CWT only adults and jacks (summer Chinook).
        - b. Pass all natural fish (no AD clip or CWT).
        - c. Jacks will be provided for subsistence distribution to the NPT or local food banks.
        - d. ASSIGNMENT: In the next year, IDFG and NPT will develop a more formal plan for management of the Crooked River weir summer Chinook program for 2014 and beyond – for inclusion in the HGMP.
    - iii. Red River Weir
      - 1. Retain all AD clipped adults for broodstock.
        - a. Meet US v Oregon mandated production for the facility first.
        - b. Backfill for other hatchery programs to meet US v Oregon mandated production second.
        - c. Evaluate in season whether to recycle or meet increased production broodstock above US v Oregon production needs third
        - d. Pass AD clipped adults above weir to supplement natural spawning last.

2. Pass all natural fish.
  3. Revisit priorities in emergency broodstock shortage.
  4. IDFG and NPT will investigate installing a temporary weir downstream to supplement broodstock collections in 2013.
    - a. Same fish allocation protocols apply to this weir if installed.
    - b. ASSIGNMENT: Matt Corsi, Joe Oatman and Cassie Sundquist will select site. IDFG will notify comanagers of proposed weir location in advance. Matt Corsi will coordinate with landowner at selected weir site.
    - c. NPT will approve as partners prior to install/utilization.
    - d. IDFG will operate weir if utilized.
  5. Broodstock collection by Tribal anglers may be considered this year or in the future.
- iv. Powell Satellite
1. Retain all AD clipped adults for broodstock.
    - a. Meet US v Oregon mandated production for the facility first.
    - b. Backfill for other hatchery programs to meet US v Oregon mandated production second.
    - c. Evaluate in season whether to recycle or meet increased production broodstock above US v Oregon production needs third
    - d. Return AD clipped adults below weir to supplement natural spawning last.
  2. Pass all natural fish.
  3. Revisit priorities in emergency broodstock shortage.
- v. Lolo Weir
1. Retain all AD clipped adults for broodstock. Transported by NPTH drivers to NPTH for holding.
    - a. Meet US v Oregon mandated production for the facility first.
    - b. Backfill for other hatchery programs to meet US v Oregon mandated production second.
  2. Pass all natural (no CWT or AD clip) fish above the weir.
  3. Pass all AD intact/CWT only fish above weir.
- vi. Newsome Weir
1. Retain all AD clipped adults for broodstock. Transported by IDFG drivers to Red River for holding and use for Clearwater Hatchery.
    - a. Meet US v Oregon mandated production for the facility first.

- b. Backfill for other hatchery programs to meet US v Oregon mandated production second.
- 2. Pass all natural (no CWT or AD clip) fish above the weir.
- 3. Pass all AD intact/CWT only fish above weir.

**6. BY 13 Summer Chinook**

- a. SF Salmon-McCall Hatchery – implementation of sliding scale
  - i. Conventional production:
    - 1. 1,110 adult broodstock needed
      - a. 750 K release
        - i. 100% AD clipped
  - ii. Integrated production:
    - 1. Broodstock need for the integrated program is 190 adults for BY 13. Based on sliding scale:
      - a. 70% Natural component will be 133 adults.
      - b. 30% Hatchery component will be 57 adults.
      - c. 250K release
        - i. Adipose intact; 100% CWT.

iii. First integrated brood hatchery production jacks returning this year.

Disposition for these fish:

- 1. Integrated brood jacks will be passed above the weir at some level to be determined by the comanagers in advance of trapping season (Salmon River AOP).
- 2. Subsistence is a priority if these fish can be held to accommodate subsistence distribution.
  - a. √ ASSIGNMENT: Brian Leth will find out if it's possible to hold integrated jacks separately or remove them from broodstock easily at McCall Hatchery as needed for subsistence.

FOLLOW UP: Gary Byrne checked with Gene McPherson who says they do have the ability to sort and hold separate returning integrated summer Chinook salmon jacks.

- b. ASSIGNMENT: Sam Sharr will schedule a Salmon River AOP....soon ☺
- 3. Sliding scale is based on preseason run forecast.
  - a. This forecast will be used to determine the initial pass/keep ratio.
  - b. At 12 days (approx. 30% of run) of trapping, review and adjust pass/keep ratio as needed.
  - c. ASSIGNMENT: Brian Leth will send Jay Hesse and Jason Vogel spreadsheet version of sliding scale for review.

- b. SF Salmon – McCall Hatchery brood source for summer Chinook in SF Clearwater
  - i. Group agrees on trying to make minimum program of 200K release at Crooked River. Hope is to collect as much brood as possible from Crooked River and backfill from McCall (when all fisheries are over on the South Fork Salmon) up to the 400K release target.

**7. BY 13 Steelhead – DNFH.**

- a. Culled BY 13 SH eggs may go to IDFG for sturgeon project.
- b. Next Tuesday, go thru all female adults in holding at DNFH.
  - i. Spawn ripe fish (max of 75 females).
  - ii. Return unripe fish to river.
  - iii. CWT fish will be held to be spawned later.
  - iv. Start trapping again.
- c. Eggs from 2.5 females to meet need of Eggs in Classroom and Dr. Nagler request for research. Decision pending. May refer Nagler request to LFH.
  - i. Trout in Classroom eggs can be provided by extra ripe female not needed next week.
  - ii. Nagler request will be determined as season progresses, or go to LFH as alternative egg source.
- d. Group agrees to formalize approval process for all of these types of requests, regardless of size. Applies to all agencies.
  - i. Whenever possible, capture these approved requests in AOP.
  - ii. For in-season after AOP is completed co-manager concurrence can be obtained by circulating proposals and getting agreement from each co-manager. Consider sign off form currently used by FWS.
  - iii. HET representatives from each Agency to be listed in AOP annually – HET group to be determined during Feb. 14<sup>th</sup> AOP meeting.
  - iv. HET guidelines and process to be distributed to AOP group.
- e. ASSIGNMENT: Speros will share USFWS Research Request for Fish Form with group for consideration to use as a tool for gaining concurrence.