PROPOSED ACTION FOR SNAKE RIVER FALL CHINOOK
April 2018

Introduction

National Marine Fisheries Service (NMFS) describes a hatchery program as a group of fish that have a separate purpose and that may have independent spawning, rearing, marking, and release strategies (NMFS 2008a). The operation and management of every hatchery program is unique in time, and specific to an identifiable stock and its native habitat (Flagg et al. 2004). NMFS defines integrated hatchery programs as those that are reproductively connected or "integrated" with a natural population, promote natural selection over artificial selection in the hatchery, and contain genetic resources that represent the ecological and genetic diversity of a species.

This Proposed Action specifically addresses changes in the operation and maintenance and monitoring and evaluation (M&E) of Lyons Ferry Hatchery (LFH), Fall Chinook Acclimation Project (FCAP), Nez Perce Tribal Hatchery (NPTH), and Idaho Power Company (IPC) hatchery programs rearing and releasing Snake River fall Chinook salmon (SRCHF) in the Snake River Basin as outlined in their respective Hatchery and Genetic Management Plans (HGMPs) submitted to NOAA Fisheries for consultation under Section 10(A) of the Endangered Species Act in 2011. These programs were previously consulted on with NMFS (Consultation 2011/03947 and 2011/03948) and USFWS (Consultation 01EIF00-2012-F-0448) resulting in Section 10 permits #16607 and #16615.

The hatchery programs are operated by agencies outlined in Table 1 and are described in detail in their original HGMPs (WDFW, et al. 2011 and NPT 2011) and the supplementary Amended Snake River Fall Chinook Addendum (WDFW, et al. 2011). The hatchery facilities involved in the rearing and release of the SRCHF program are shown in Figure 1.

Table 1. Programs included in the Proposed Action.

Program	HGMP Submission[1]	Program Operator[2]	Funding Agency	ESA Pathway
Lyons Ferry Hatchery	May 2011	WDFW	LSRCP[3]	Section 10
Fall Chinook Acclimation Project (FCAP)	May 2011	NPT	BPA	Section 10
Nez Perce Tribal Hatchery	May 2011	NPT	BPA	Section 10
Idaho Power Company	May 2011	WDFW/ODFW	IPC	Section 10

[1]The Final Amended Snake River Fall Chinook Addendum was submitted in July 2011.

[2]Primary operators are listed, but all programs are coordinated between the Nez Perce (NPT) and Umatilla tribes, Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW), and Idaho Department of Fish and Game (IDFG), Federal agencies, and Idaho Power Company. Hatchery operators are: WDFW, ODFW, and NPT.

[3]The United States Fish and Wildlife Service (USFWS) is the funding agency through the Lower Snake River Compensation Plan (LSRCP).

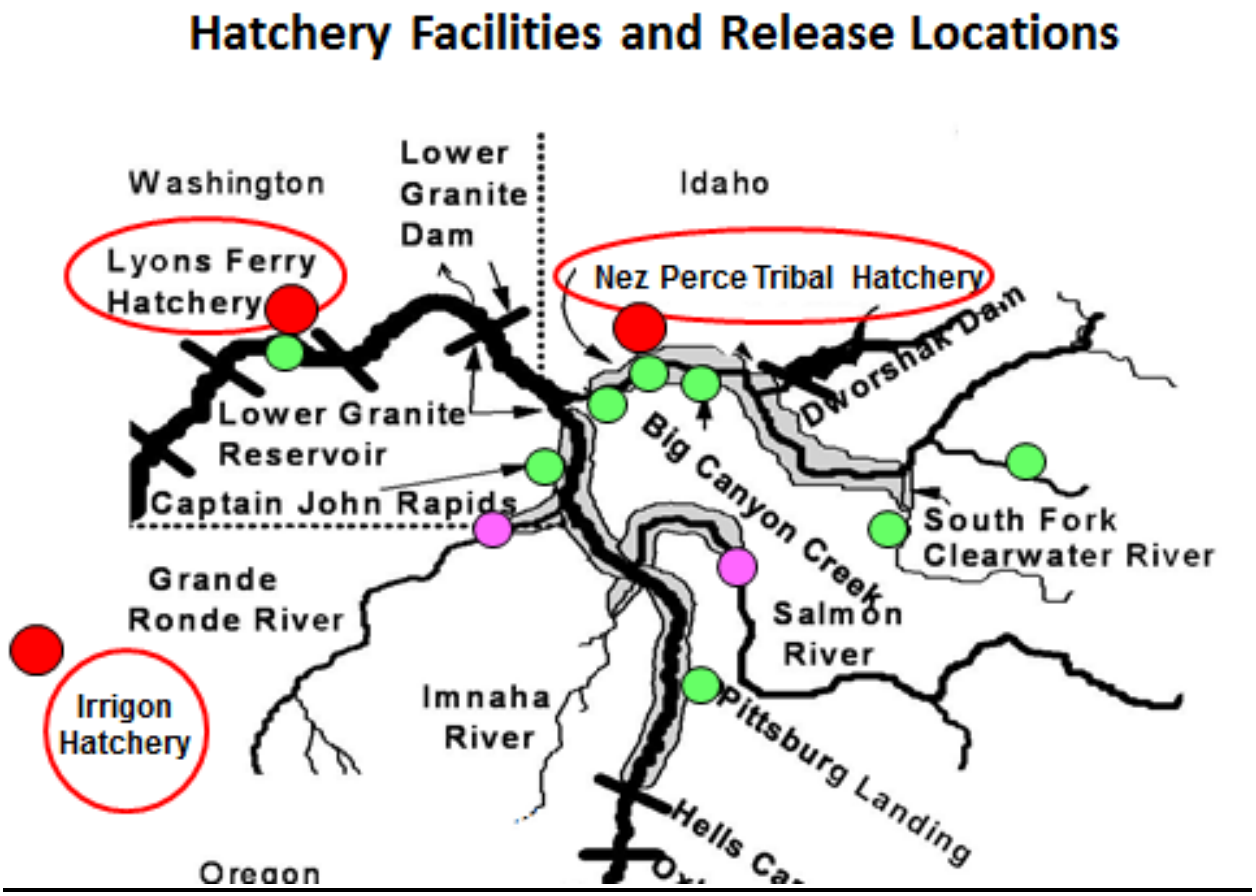

Figure 1. Hatchery facilities (Red dot = main hatchery, Green dot = acclimation facility/acclimated release, Purple dot = direct stream release) in the Snake Basin included in the Proposed Action.

Proposed Action

"Action," as applied under the Endangered Species Act (ESA), means all activities, of any kind, authorized, funded, or carried out, in whole or in part, by Federal agencies. The objective of this Proposed Action is to document the determination of likely effects on ESA-listed salmon and steelhead and their designated critical habitat resulting from operation and maintenance of the four hatchery programs listed in Table 1. This document demonstrates that the Proposed Action complies with the provisions of Section 10(a) of the ESA. The duration of the Proposed Action is intended to be ongoing.

The Proposed Actions being considered are:

- The Proposed Action for the Bonneville Power Administration (BPA) is the funding of the operation, maintenance, and M&E of the NPTH and FCAP programs to support efforts to mitigate for effects of the development and operation of the Federal Columbia River Power

System (FCRPS) on fish and wildlife in the mainstem Columbia River and its tributaries under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (16 USC section 839n(h)(10)(A)).

- The Proposed Action for the U.S. Fish and Wildlife Service (USFWS) is the funding of the operation, maintenance, and M&E of the LFH through the LSRCP which is approved by the Water Resources Development Act of 1976, (Public Law 94-587, Section 102, 94th Congress) to offset losses of anadromous fish in the Snake River Basin caused by the four dam and navigation lock projects in the Lower Snake River.

- The Proposed Action for IPC is the funding of the SRCHF program as stipulated in the 1980 Hells Canyon Settlement Agreement for the operation, maintenance, and M&E of fish from LFH and Irrigon hatcheries and direct release of fish in the Salmon River.

- The Proposed Action for NMFS is issuance of two Section 10(a)1(a) direct take authorizations for a subset of programs as defined in Table 1.

Consultation History

The first hatchery consultations in the Columbia Basin followed the first listings of Columbia Basin salmon under the ESA. Snake River fall Chinook salmon were listed as threatened species on April 22, 1992, and the first hatchery consultation and opinion was completed on April 7, 1994 (NMFS 1994). The 1994 opinion was superseded by the "Endangered Species Act Section 7 Biological Opinion on 1995-1998 Hatchery Operations in the Columbia River Basin, Consultation Number 383" completed April 5, 1995 (NMFS 1995). This opinion determined that hatchery actions jeopardized listed Snake River salmon and required implementation of reasonable and prudent alternatives (RPAs) to avoid jeopardy.

Between 1991 and 1999, the number of Columbia Basin salmon and steelhead populations listed under ESA increased from three to twelve and prompted NMFS to reassess its approach to hatchery consultations. In July 1999, NMFS announced that it intended to conduct five separate consultations and issue five opinions including one specific to the Snake River Basin.

A review of federally funded hatchery programs ordered by Congress was underway at about the same time along with the 2000 Federal Columbia River Power System (FCRPS) opinion issued by NMFS (NMFS 2000). The Northwest Power and Conservation Council (Council) was asked to develop a set of coordinated policies to guide the future use of artificial propagation, and RPA 169 of the FCRPS opinion called for the completion of NMFS-approved hatchery operating plans (HGMPs).

An initial draft HGMP for the SRCHF program at LFH was submitted in 2002. In May of 2011, the hatchery operators and funders formally submitted final Snake River Fall Chinook HGMPs (WDFW, et al. 2011 and NPT 2011) and the associated supplemental Addendum 1 to NMFS for consultation. Subsequent to that submission, an Amended Addendum (WDFW, et al. 2011) was developed and submitted to NMFS in July 2011.

A Biological Opinion evaluating the effects of the hatchery programs on SRCHF and the associated permits were issued in October 2012. The permits were valid for a period of five years. The purpose of this proposed action is to update the status of the hatchery program for the next consultation.

Proposed hatchery broodstock collection

For this Proposed Action, broodstock collection will remain essentially the same as outlined in the respective HGMPs. The primary focus is on collecting adults returning to Lower Granite Dam (LGR) trap. Trapping rates are developed annually by Snake Basin co-managers and adjusted in-season as necessary based on the estimated return strength of the run. Additional broodstock are collected at LFH and NPTH hatcheries only as needed to reach production goals. No broodstock are collected at the IPC Hells Canyon Dam trap.

Collected broodstock are divided between LFH and NPTH, usually at a 70:30 ratio as agreed upon annually. The broodstock trapping objectives are for approximately 2,700 adults (generally this is about 1,350 females but in some years could be as high as 1,500) for LFH and 950 (475 females) for NPTH. Males may be used on multiple females so are not necessarily needed at a 1:1 rate and fewer may be collected. Natural origin return adults are targeted to be included in the brood at a rate of 30% with no more than 20% of the total natural origin return collected at LGR.

Proposed hatchery rearing and juvenile release

Hatchery incubation, rearing and fish health protocols will remain similar to that as outlined in the respective HGMPs with an additional new goal to provide segregation throughout the rearing cycle for each release group for Parental Based Tagging (PBT) identification. There have been some modifications to the rearing and release locations for various components of the program in the interim since the HGMPs were submitted in 2011. These include;

- Discontinuation of rearing at the IPC Oxbow Hatchery
- Transfer of rearing for the entire IPC program from Oxbow and Umatilla hatcheries to Irrigon Hatchery
- Transfer of release location of IPC program from Hells Canyon Dam on the Snake River to the Salmon River at approximately RKM 85
- Discontinuation of the Couse Creek direct stream release and acclimation of that group at Captain John Rapids

The main objective of this Proposed Action is to identify changes in the life stage of hatchery releases, overall hatchery production, and marking, tagging and release locations from the current program. For this Proposed Action, these include:

- Overall hatchery production for the basin increased by 150,000 smolts.

- The releases of yearlings above LGR at the FCAP facilities will be discontinued and converted to subyearling releases (FCAP program). This will require double-shifting (or acclimating two separate groups) the acclimation sites.

- The release of subyearlings for the LFH program has increased from 200,000 to 700,000 subyearlings (this includes moving 400,000 subyearling fish previously released upstream of LGR downstream to LFH).

- Total yearling production in the basin was reduced from 900,000 to 450,000 (FCAP program). Total subyearling production in the basin was increased from 4.6 million to 5.2 million.

- Reduction of release group under the NPTH program from North Lapwai Valley and moving fish from that group to acclimation facilities in the upper Clearwater basin at Lukes Gulch (S.F. Clearwater River) and Cedar Flats (Selway River) to increase those releases.

- Marking of Snake River fall Chinook will still occur under a comprehensive mark strategy (all programs). Changes to that strategy beginning in 2018 include:

    1) Each release site and group will have a representative 200,000 Ad/CWT mark, with the exception of all NPTH production releases which will be combined for a 200,000 Ad/CWT release group as needed.
    2) All CWT only groups and Ad-clip only groups have been discontinued. A double index tagged group of fish (200,000 CWT only) maybe implemented following technical agreement.
    3) All release groups of fish will be individually identifiable through PBT.

The new production program as compared to the previous program (2012-2018) with reprogramming changes split out by the two production facilities of origin is outlined in Table 2.

Proposed disposition of excess juvenile hatchery fish

For this Proposed Action, if there are eggs or juvenile fish in excess of hatchery production targets the co-managers will consult with NOAA Fisheries prior to disposition.

Proposed research, monitoring and evaluation (RM&E)

For this Proposed Action, ongoing monitoring activities, including standard production monitoring (Table 3), will continue for all groups. In addition, the cooperators are exploring monitoring that will assess the effects of the changes in release sites on the distribution of natural and hatchery spawners in the Snake River above the mouth of the Salmon River to Hells Canyon Dam. This assessment will utilize ongoing redd surveys and may include carcass recoveries. Currently, IPC and USGS are exploring a direct approach through carcass recovery and PBT analysis; however, technical feasibility issues remain to be resolved

Table 2. Past and future releases from production originating from LFH or NPTH.

Lyons Ferry, Irrigon, Fall Chinook Acclimation Hatchery Production

Priority	Production Program 2008-2017 *US vs Oregon* Management Agreement					Production Program 2018-2027 *US vs Oregon* Management Agreement				
	Rearing Facility	Release Number	Age	Release Location	Marking	Rearing Facility	Release Number	Age	Release Location	Marking [2]
1	Lyons Ferry	450,000	1+	On Station	225K AdCWT 225K CWT	Lyons Ferry	450,000 [1]	1+	On Station	450K AdCWT
2	Lyons Ferry	150,000	1+	Pittsburg Landing	70K AdCWT 80K CWT only	Lyons Ferry	450,000	0+	Captain John Rapids	200K AdCWT 250K no clip
3	Lyons Ferry	150,000	1+	Big Canyon	70K AdCWT 80K CWT only	Lyons Ferry	450,000	0+	Big Canyon	200K AdCWT 250K no clip
4	Lyons Ferry	150,000	1+	Captain John Rapids	70K AdCWT 80K CWT only	Lyons Ferry	500,000	0+	On Station	200K AdCWT 300K no clip
5	Lyons Ferry	200,000	0+	On Station	200K AdCWT	Lyons Ferry	400,000	0+	Pittsburg Landing	200K AdCWT 200K no clip
6	Lyons Ferry	500,000	0+	Captain John Rapids	100K AdCWT 100K CWT only 300K Unmarked	Lyons Ferry	200,000	0+	Captain John Rapids 2	200K AdCWT
7	Lyons Ferry	500,000	0+	Big Canyon	100K AdCWT 100K CWT only 300K Unmarked	Lyons Ferry	200,000	0+	Big Canyon 2	200K AdCWT
8	Lyons Ferry	200,000	0+	Pittsburg Landing	100K AdCWT 100K CWT only	Lyons Ferry	200,000	0+	Pittsburg Landing 2	200K AdCWT
9	Irrigon	200,000	0+	Salmon River	200K AdCWT	Irrigon	1,000,000	0+	Salmon River	200K AdCWT 800K no clip
10	Lyons Ferry	200,000	0+	Pittsburg Landing	200K Unmarked	Irrigon	200,000	0+	Grande Ronde	200K AdCWT
11	Lyons Ferry	200,000	0+	Captain John Rapids	200K AdCWT	Lyons Ferry	200,000 [3]	0+	On Station	200K no clip
12	Irrigon	200,000	0+	Grande	200K AdCWT					
13	Irrigon	200,000	0+	Salmon River	200K Ad Only					
14	Irrigon	200,000	0+	Grande	200K Unmarked					
15	Irrigon	600,000	0+	Salmon River	600K Ad only					
Total		4,100,000					4,250,000			
Clipped		2,335,000					2,250,000			
Unclipped		1,765,000					2,000,000			

Nez Perce Tribal Hatchery Production

1	NPTH	500,000	0+	On station	100K AdCWT 200K CWT Only 200K Unmarked	NPTH	500,000	0+	On station	100K AdCWT 400K no clip
2	NPTH	200,000	0+	Luke's Gulch	100K AdCWT 100K CWT Only	NPTH	350,000[4]	0+	Luke's Gulch	100K AdCWT 250K no clip
	NPTH	200,000	0+	Cedar Flats	100K AdCWT 100K CWT Only	NPTH	350,000[4]	0+	Cedar Flats	100K AdCWT 250K no clip
3	NPTH	500,000	0+	North Lapwai Valley	100K AdCWT 200K CWT Only 200K Unmarked	NPTH	200,000[5]	0+	North Lapwai Valley	100K AdCWT 100K no clip
Total		1,400,000					1,400,000			
Clipped		400,000					400,000			
Unclipped		1,000,000					1,000,000			

[1] The parties agree during the term of the next agreement to re-evaluate and discuss the reduction and/or elimination of the yearling program at LFH

[2] In addition to the standard marking/tagging shown, all release sites and times will be PIT Tagged and PBT marked/tagged.

[3] If available, these will be included with Priority #4, and do not require an additional AdCWT group or PIT Tags.

[4] Anticipated release numbers based on facility capacity. Actual release numbers may be less depending on environmental conditions. Fish not released at these sites will be released on station at NPTH.

[5] If environmental conditions preclude acclimation at North Lapwai Valley these fish will be released on station at NPTH

Table 3. Proposed monitoring and evaluation.

Activity	Purpose	Implementers	Associated Programs
Adult trapping and tissue sampling at Lower Granite Dam and hatchery traps for recording: date, sex, length, origin (hatchery or natural), numbers, marks/tags, and disposition	Identify and track returns to the Snake River Basin. Track program performance of individual release groups.	WDFW, NPT, NMFS (BPA# 2005-002-00)	LFH, NPTH, IPC, FCAP
Monitoring of survival metrics for all life stages in the hatchery from spawning to release.	Track in-hatchery program performance and identify limiting factors	WDFW, NPT, ODFW	LFH, NPTH, IPC, FCAP
Monitor health and condition of adult and juveniles associated with hatchery production	Track in hatchery fish health and perform prerelease sampling	WDFW, NPT, ODFW, USFWS	LFH, NPTH, IPC, FCAP
Continued marking of hatchery production; Adipose clipping, coded wire tagging, PIT Tagging and 100% marking of hatchery production via Parentage Based Tagging-PBT).	Continued estimates of adult harvest (coastwide and in-river), adult escapement of both HOR and NOR to Snake Basin and pNOB in program. Estimates of in-river and overall survival estimates from smolt to adult return. Contributes to estimation of overall fisheries mitigation benefit. Continued exclusion of strays from hatchery broodstocks and estimation of strays to spawning grounds.	WDFW, ODFW, NPT, PBT Sampling combined for CRITFC, IDFG and WDFW labs.	LFH, NPTH, IPC, FCAP
Complete run reconstruction. PBT sampling of LGR Run-at-Large a component piece	Adult escapement of both HOR and NOR to Snake Basin and pNOB in program. Estimates of in-river and overall survival from smolt to adult return. Contributes to estimation of overall mitigation benefit and survival by hatchery release group. Estimations of strays to spawning ground.	WDFW, IPC, NPT, NMFS and CRITFC, IDFG and WDFW labs for PBT analysis.	LFH, NPTH, IPC, FCAP
Redd counts across spawning areas	Adult spawning distribution and success. Informs natural population abundance and life-cycle modeling.	IPC, USFWS, USGS, NPT, WDFW	LFH, NPTH, IPC, FCAP

Proposed operation and maintenance of hatchery facilities

For this Proposed Action, there will be no changes at any of the facilities with regard to water withdrawal or discharge from what is identified in the respective HGMPs and all the relevant water withdrawal and NPDES discharge permits that are currently in place.

Several routine (and semi-routine) maintenance activities occur at all of the facilities. Some of these occur in or near water that could impact fish in the area including: sediment/gravel removal/relocation from intake and/or outfall structures, pond cleaning, pump maintenance, debris removal from intake and outfall structures, and maintenance and stabilization of existing bank protection. When maintenance activities occur within water, they will comply with the following guidance:

- In-water work will:
    - Be done during the allowable in-water work periods established for each location, or comply with an approved variance of the allowable in-water work period with the appropriate state and federal agencies
    - Follow a pollution and erosion control plan that addresses equipment and material storage sites, fueling operations, staging areas, cement mortars and bonding agents, hazardous materials, spill containment and notification, and debris management
    - Cease if fish are observed in distress at any time as a result of the activities
    - Include notification of NMFS staff

- Equipment will:
    - Be inspected daily, and be free of leaks before leaving the vehicle staging area.
    - Work above ordinary high water or in the dry whenever possible.
    - Be sized correctly for the work to be performed and have approved oils / lubricants when working near flowing water.
    - Be cleaned and free of vegetation before they are brought to the site.

References

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