

**FISHERIES MANAGEMENT AND EVALUATION PLAN**  
**Submitted Under the 4(d) Rule Limit 4**

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Fishery Management and Evaluation Plan for the State of Idaho, Washington, and Oregon Anadromous  
Fish Species Sport Fishing Programs for Directed Adipose-Intact Fall Chinook Salmon Fisheries

**Prepared jointly by:**  
**Idaho Department of Fish and Game, Oregon Department of Fish, and Wildlife and Washington**  
**Department of Fish and Wildlife**

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**Title.** Fishery Management and Evaluation Plan for the State of Idaho, Washington, and Oregon Anadromous Fish Species Sport Fishing Program for Adipose-Intact and Mark-Selective Fall Chinook Salmon Fisheries.

**Responsible Management Agencies**

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**SECTION 1. FISHERIES MANAGEMENT**

**1.1) General objectives of the FMEP.**

This FMEP is being submitted by the Idaho Department of Fish and Game (IDFG), Oregon Department of Fish and Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW), hereafter referred to as the “States” for authorization of directed take of listed Snake River (SR) fall Chinook under the ESA in recreational fisheries targeting adipose-intact fall Chinook salmon. The States coordinated the development of this FMEP with representatives from National Oceanic and Atmospheric Administration (NOAA) Fisheries, IDFG, WDFW, ODFW, the Nez Perce Tribe (NPT), Shoshone Bannock Tribe (SBT), and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR).

The objective of this FMEP is to harvest adipose-intact hatchery-origin SR fall Chinook in a manner that does not jeopardize the survival and recovery of the listed SR fall Chinook ESU or other listed anadromous species (SR steelhead). SR spring/summer Chinook salmon and SR sockeye salmon are not likely to be encountered in these fisheries due to non-overlapping adult run timing and spatial segregation of spawning aggregates. Fall Chinook fishing areas include the main stem Snake River, Tucannon River, Grande Ronde River, Salmon River, main stem and Middle Fork, South Fork and North Fork Clearwater rivers. This FMEP addresses the directed harvest mortality of adipose-intact fall Chinook, which is in addition to the indirect fall Chinook mortality of natural-origin salmon addressed in the States’ Recreational Steelhead fisheries and adipose-clipped fall Chinook fisheries. The States submitted FMEPs that described indirect take of natural Fall Chinook Salmon from the Steelhead fisheries in 2009 and 2010 (IDFG 2010, ODFW 2009, WDFW 2010) and most recently re-submitted FMEPs for authorization in 2018 and 2019 (IDFG 2018, ODFW 2019). The harvest rates for adipose-intact fall Chinook described below will include indirect mortality from the steelhead, coho, and adipose clipped Fall Chinook fisheries in addition to the directed take outlined in this document.

**1.1.1) List of the “Performance Indicators” for the management objectives.**

**Fall Chinook Fishery Performance Indicators:**

- total fishing effort and fishing opportunity (number of anglers, hours fished, days of opportunity, number of river miles open);
- harvest by fishery of adipose-intact hatchery SR fall Chinook adults
- numbers of caught and released adipose-clipped hatchery SR fall Chinook;
- numbers of caught and released adipose-intact natural and hatchery SR fall Chinook;
- estimated encounters and encounter rate of listed natural SR fall Chinook;
- estimated total mortality and mortality rate of listed natural SR fall Chinook;
- estimated encounters of bull trout, spring/summer Chinook Salmon, Sockeye Salmon, and steelhead incidentally caught in this fishery

**1.1.2) Description of the relationship and consistency of harvest management with artificial propagation programs.**

Snake River hatchery fall Chinook production in the Snake, Salmon, Tucannon, Clearwater and Grande Ronde Rivers is managed under terms of the 2018-2027 U.S. v. Oregon Management Agreement (U.S. v. Oregon 2018; Table B4A, inserted below). Hatchery-origin fall Chinook yearlings and sub-yearlings are released into the Clearwater River and the Snake River downstream of Hells Canyon dam to meet objectives of the Lower Snake River Compensation Plan (LSRCP), Idaho Power Corporation (IPC), and Nez Perce Tribal (NPT) hatchery programs. Beginning with release year 2018, the release of 1 million sub-yearlings at Hells Canyon Dam was moved to the Salmon River (RKM 85). The LRSRP is designed to mitigate for commercial, sport and tribal fisheries impacted by the construction of the four lower Snake River dams. The IPC program is designed to mitigate for construction and operation of the Hells Canyon Dam Complex. The NPT Hatchery program provides mitigation for the effects of the Federal Columbia River Hydropower System on naturally-reproducing salmon in the Clearwater River, Idaho. The NPT hatchery program is a supplementation program with a goal to rear and release fall Chinook into the Clearwater River that will provide tribal and non-tribal harvest opportunities. In addition, hatchery juveniles are released from these programs with intentions of enhancing abundance of naturally-spawning fall Chinook through returning, anadromous adults that spawn naturally in the wild with their natural counter-parts.

Snake River fall Chinook are managed as integrated hatchery programs under the fall Chinook HGMPs. Harvest authorized under this FMEP may originate from directly targeting adipose-intact fall Chinook, and in conjunction with ongoing summer steelhead fisheries, coho, or adipose-clipped Fall Chinook fisheries described hereafter and within other submitted FMEPs (WDFW 2009, ODFW 2010, IDFG 2018, ODFW 2019). Hatchery Genetic and Management Plans (HGMPs) were submitted in 2011 for all fall Chinook hatchery programs (WDFW et al. 2011, NPT 2011) and the Section 10 permits were issued in 2012 (NMFS 2012). In 2018, the proposed action was submitted for the next consultation, which outlined any new changes associated with the hatchery programs.

Fall Chinook salmon production, as identified in the U.S v. Oregon management agreement, totals 5.6 million yearlings/subyearlings that are released throughout the Snake River basin (U.S. v. Oregon 2018). As part of marking agreements under U.S. v. Oregon, hatchery fall Chinook releases in the Snake River basin are not uniformly marked with an adipose fin clip. Approximately half of all the hatchery smolts and sub-yearlings are not adipose-clipped (Table 1). The intent of this marking is to allow the majority of supplementation fish to pass upstream of Lower Granite Dam to spawn naturally (U.S. v. Oregon 2018). Subsequent returns are a mix of natural-origin, adipose-clipped hatchery and adipose-intact hatchery fish. The proportion of adipose-intact hatchery-origin fall Chinook, adipose-clipped hatchery-origin fall Chinook and natural-origin Fall Chinook within the total escapement above Lower Granite Dam has averaged 41%, 30% and 29%, respectively from 2007-2018 (Figure 1). The proportion of natural-origin

fish in the adipose-intact group is ~40%, on average. Recreational salmon and steelhead fisheries are managed using visual identification of the adipose clip (as evidenced by a healed scar). With a high proportion of the overall run comprised of adipose-intact hatchery fish that anglers cannot harvest, mark-selective fisheries have been limited in meeting conservation and harvest mitigation objectives.

Excerpted from US v. OR (2018):

<b>Table B4. Snake River fall Chinook Salmon production priorities for the Lower Snake River Compensation Program at Lyons Ferry Hatchery, the Fall Chinook Acclimation Program, and the Idaho Power Program for Brood Years 2018-2027.</b>					
<b>Priority</b>	<b>Rearing Facility</b>	<b>Number</b>	<b>Age</b>	<b>Release Location(s)</b>	<b>Marking <sup>1,2</sup></b>
1	Lyons Ferry	450,000 <sup>3</sup>	1+	On station	450K AdCWT
2	Lyons Ferry	450,000	0+	Captain John	200K AdCWT 250K no clip
3	Lyons Ferry	450,000	0+	Big Canyon	200K AdCWT 250K no clip
4	Lyons Ferry	500,000	0+	On station	200K AdCWT 300K no clip
5	Lyons Ferry	400,000	0+	Pittsburg Landing	200K AdCWT 200K no clip
6	Lyons Ferry	200,000	0+	Captain John 2	200K AdCWT
7	Lyons Ferry	200,000	0+	Big Canyon 2	200K AdCWT
8	Lyons Ferry	200,000	0+	Pittsburg Landing 2	200K AdCWT
9	Irrigon	1,000,000	0+	Salmon River <sup>4</sup>	200K AdCWT 800K no clip
10	Irrigon	200,000	0+	Grande Ronde River	200K AdCWT
11	Lyons Ferry	200,000 <sup>5</sup>	0+	On station	200K no clip
TOTAL	Yearlings	450,000			
	Subyearlings	3,800,000			
<b>Table B4- continued. Snake River fall Chinook salmon production priorities for Nez Perce Tribal Hatchery - for Brood Years 2018-2027.</b>					
<b>Priority</b>	<b>Number</b>	<b>Age</b>	<b>Life History</b>	<b>Release Location(s)</b>	<b>Marking</b>
1	500,000	0+	Standard	On station	100K AdCWT 400K no clip
2	350,000 <sup>6</sup>	0+	Early-spawning	Luke's Gulch	100K AdCWT 250K no clip
2 3	350,000 <sup>6</sup>	0+	Early-spawning	Cedar Flats	100K AdCWT 250K no clip
	200,000 <sup>7</sup>	0+	Standard	North Lapwai Valley	100K AdCWT 100K no clip
TOTAL	1,400,000	Subyearlings			
GRAND TOTAL Snake Basin: 450,000 yearlings, 5,200,000 subyearlings					

Footnotes for Table B4: Snake River Fall Chinook Salmon

1. *The Parties expect that fisheries conducted in accordance with the harvest provisions of this Agreement will not compromise broodstock acquisition. If broodstock acquisition is nevertheless compromised by the current mark strategy and as a result of implementation of mark selective fisheries for fall Chinook in the ocean or Columbia/Snake River mainstem, the Parties will revisit the marking strategy during the course of this Agreement.*
2. *For all Snake River Fall Chinook hatchery programs, tissue samples are collected annually from broodstock and incorporated into a parentage-based tagging (PBT) baseline. The hatchery programs effectively 'tag' ~90-100% of annual releases. All release sites and groups will be PIT tagged and differentially PBT marked/tagged.*
3. *The Parties agree during the term of the current Agreement to re-evaluate and discuss the reduction and/or substitution of the yearling program at LFH to subyearlings.*
4. *Beginning with BY18, the releases of subyearlings at Hells Canyon Dam will be moved to the Salmon River. Several Parties are actively participating in the re-licensing of Idaho Power Company's Hells Canyon Complex and its operations. Idaho Power Company's mitigation responsibilities, including production numbers and release locations are a subject of these discussions. The production numbers and release locations of fall Chinook specified herein shall not affect any Party's right to pursue alternative production and release locations in connection with the development of a long-term agreement and/or in connection with the Hells Canyon re-licensing process. The adult return information from these releases will inform the Parties as they consider whether to move additional release locations during the course of the Management Agreement.*
5. *If available, these fish will be included with Priority #4 and do not require an additional Ad-CWT group or PIT tags.*
6. *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.*
7. *If environmental conditions preclude acclimation at North Lapwai Valley these fish will be released on station at NPTH.*

Table 1. Summary of adipose-clipped and unclipped (adipose-intact) hatchery Snake River fall Chinook released in the Snake and Clearwater rivers, 2009-2017.

Drainage	ReleaseSite	Migratory Years																	
		2009		2010		2011		2012		2013		2014		2015		2016		2017	
		Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped	Sum of Clipped	Sum of Unclipped
Clearwater	Big Canyon (Clearwater River)	173,009	546,948	172,938	606,014	172,204	608,098	177,441	497,803	173,559	487,654	180,992	510,248	203,401	498,970	171,647	482,543	173,499	509,790
	Cedar Flats Acclim.	98,036	101,962	99,144	89,267	102,226	103,330	99,384	100,066	101,852	112,012	103,170	149,719	102,733	219,722	102,062	126,968	104,235	129,967
	Clearwater River	100,092	395,477	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Lapwai Creek	-	-	100,252	365,697	100,456	409,064	102,560	460,653	101,450	394,087	102,681	312,875	-	-	-	-	-	-
	Lukes Gulch Acclim.	100,845	109,033	99,438	99,531	103,003	104,479	97,375	101,481	98,911	105,419	101,599	153,594	102,439	221,073	101,815	122,376	104,392	134,380
	Nez Perce Tribal Hatchery	118,678	510,137	100,329	436,670	100,416	712,932	105,300	493,186	104,601	581,962	103,642	422,636	205,127	715,287	204,543	754,529	202,153	827,878
<b>Clearwater Total</b>		<b>590,660</b>	<b>1,663,557</b>	<b>572,101</b>	<b>1,597,179</b>	<b>578,305</b>	<b>1,937,903</b>	<b>582,060</b>	<b>1,653,189</b>	<b>580,373</b>	<b>1,681,134</b>	<b>592,084</b>	<b>1,549,072</b>	<b>613,700</b>	<b>1,655,052</b>	<b>580,067</b>	<b>1,486,416</b>	<b>584,279</b>	<b>1,602,015</b>
Snake	Couse Creek	199,400	239,084	201,395	197,259	201,330	201,724	198,642	658	203,165	2,135	-	-	-	-	-	-	-	-
	Cpt John Acclim Pond	171,589	494,132	173,379	510,035	173,441	497,625	174,061	486,801	173,744	489,065	371,755	495,107	406,427	503,667	366,436	506,482	175,954	517,298
	Grande Ronde River	372,337	250,113	199,996	186,844	242,097	157,403	216,000	168,000	216,687	184,586	201,694	202,232	207,479	248,622	207,612	222,276	203,778	220,615
	Hells Canyon Dam	773,552	232,772	878,536	-	813,420	20,289	1,002,681	-	849,177	569	908,996	2,548	1,044,889	1,378	1,039,566	1,619	-	-
	Tucannon River	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100,000
	Lyons Ferry Hatchery	426,295	229,552	454,321	226,859	428,848	237,081	448,539	242,361	454,297	246,803	457,116	256,129	437,400	224,332	445,733	243,904	436,834	535,055
	Pittsburg Landing Acclim Po	171,408	396,858	173,120	385,400	173,369	406,325	181,090	392,432	173,320	387,619	178,898	387,836	175,850	377,636	172,190	379,480	1,213,270	379,790
<b>Snake Total</b>		<b>2,114,581</b>	<b>1,842,511</b>	<b>2,080,747</b>	<b>1,506,397</b>	<b>2,032,505</b>	<b>1,520,447</b>	<b>2,221,013</b>	<b>1,290,252</b>	<b>2,070,390</b>	<b>1,310,777</b>	<b>2,118,459</b>	<b>1,343,852</b>	<b>2,272,045</b>	<b>1,355,635</b>	<b>2,231,537</b>	<b>1,353,761</b>	<b>2,029,836</b>	<b>1,752,758</b>
<b>Grand Total</b>		<b>2,705,241</b>	<b>3,506,068</b>	<b>2,652,848</b>	<b>3,103,576</b>	<b>2,610,810</b>	<b>3,458,350</b>	<b>2,803,073</b>	<b>2,943,441</b>	<b>2,650,763</b>	<b>2,991,911</b>	<b>2,710,543</b>	<b>2,892,924</b>	<b>2,885,745</b>	<b>3,010,687</b>	<b>2,811,604</b>	<b>2,840,177</b>	<b>2,614,115</b>	<b>3,354,773</b>

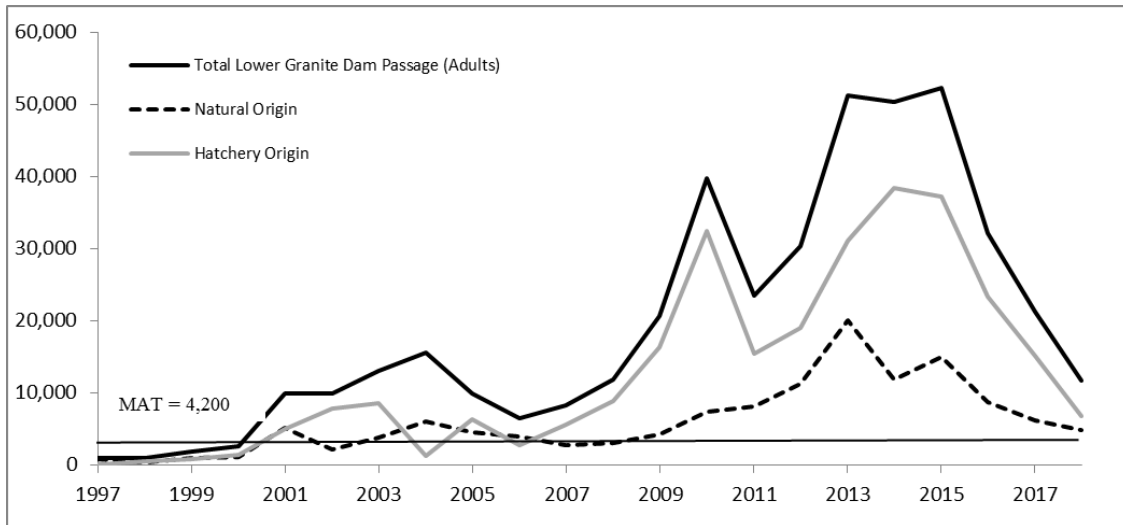


Figure 1. Total number of fall Chinook Salmon passed upstream of Lower Granite Dam, 1997-2018 including the number of natural-origin adults, and adipose-intact natural and hatchery fall Chinook passed upstream of Lower Granite Dam. The recovery goal for a single population is designated as 4,200 natural-origin adults (NMFS 2017).

**1.1.3) General description of the relationship between the FMEP objectives and Federal tribal trust obligations.**

Management of fall Chinook within the Snake basin, including harvest, is determined through a co-management process that includes ODFW, IDFG, WDFW, CTUIR, SBT, NPT, National Oceanic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (USFWS). This FMEP is consistent with co-manager agreements within U.S. v. Oregon (2018). The States coordinate with those Federal agencies with direct tribal trust obligations (USFWS, NOAA) through such avenues as U.S. v. Oregon, ESA permitting, the Lower Snake River Compensation Plan and other coordination activities.

**1.2) Fishery management area(s).**

**1.2.1) Description of the geographic boundaries of the management area of this FMEP.**

**Fall Chinook Fishery Management Units**

Fall Chinook fishery management units addressed in this FMEP include the Snake, Grande Ronde, Tucannon, and Clearwater rivers, and a portion of the Salmon River. The geographic boundaries of the fishery management areas (FMA) correspond with how impacts will be reported for non-treaty sport fisheries. As more information is gained regarding the distribution of hatchery and natural adults, these units may be broken into smaller reaches to minimize impacts on natural adults and/or increase harvest opportunities on hatchery fish. Fall Chinook Fishery management units listed below describe the geographic areas for the adipose-clipped and adipose-intact fall Chinook fisheries.

Mainstem Snake River below Lower Granite Dam/Tucannon River: WDFW plans to propose fisheries on adipose-intact and adipose-clipped fall Chinook, when natural run sizes allow, in the main stem Snake River from the mouth of the Snake River upstream to Lower Granite Dam. This management unit also includes the Tucannon River. Annual fisheries proposals may include time/area regulations within this FMA to target specific hatchery runs, and to minimize impacts to natural-origin fall Chinook Salmon.

Mainstem Snake River above Lower Granite Dam: The States plan to propose fisheries on adipose-intact and adipose-clipped fall Chinook, when natural run sizes allow, in the main stem Snake River from LGD upstream to the Blue Bridge (U.S. Highway 12) between Lewiston and Clarkston. IDFG and WDFW may jointly propose fisheries on the Snake River where it forms a boundary between Idaho and Washington. Annual fisheries proposals may include time/area regulations within this FMA to target specific hatchery runs, and to minimize impacts to natural-origin fall Chinook Salmon.

Mainstem Snake River/Salmon River/Grande Ronde River: We propose fisheries on adipose-intact and adipose-clipped fall Chinook, when natural run sizes allow, in the main stem Snake River from the confluence of the Clearwater River (Blue Bridge at U. S. Highway 12) upstream to Hells Canyon Dam. IDFG and ODFW may jointly propose fisheries on the Snake River where it forms a boundary between Idaho and Oregon. The IDFG and WDFW may jointly propose fisheries on the Snake River where it forms a boundary between Idaho and Washington. This management unit also includes the Lower Salmon and Grande Ronde rivers. Annual fisheries proposals may include time/area regulations within this FMA to target specific hatchery-runs, and to minimize impacts to natural-origin fall Chinook Salmon.

Clearwater River: We propose fisheries on adipose-intact and adipose-clipped fall Chinook in the main stem Clearwater, Middle Fork Clearwater, South Fork Clearwater and North Fork Clearwater Rivers. Annual fisheries proposals may include time/area regulations within this FMA to target specific hatchery runs, and to minimize impacts to natural-origin fall Chinook Salmon.



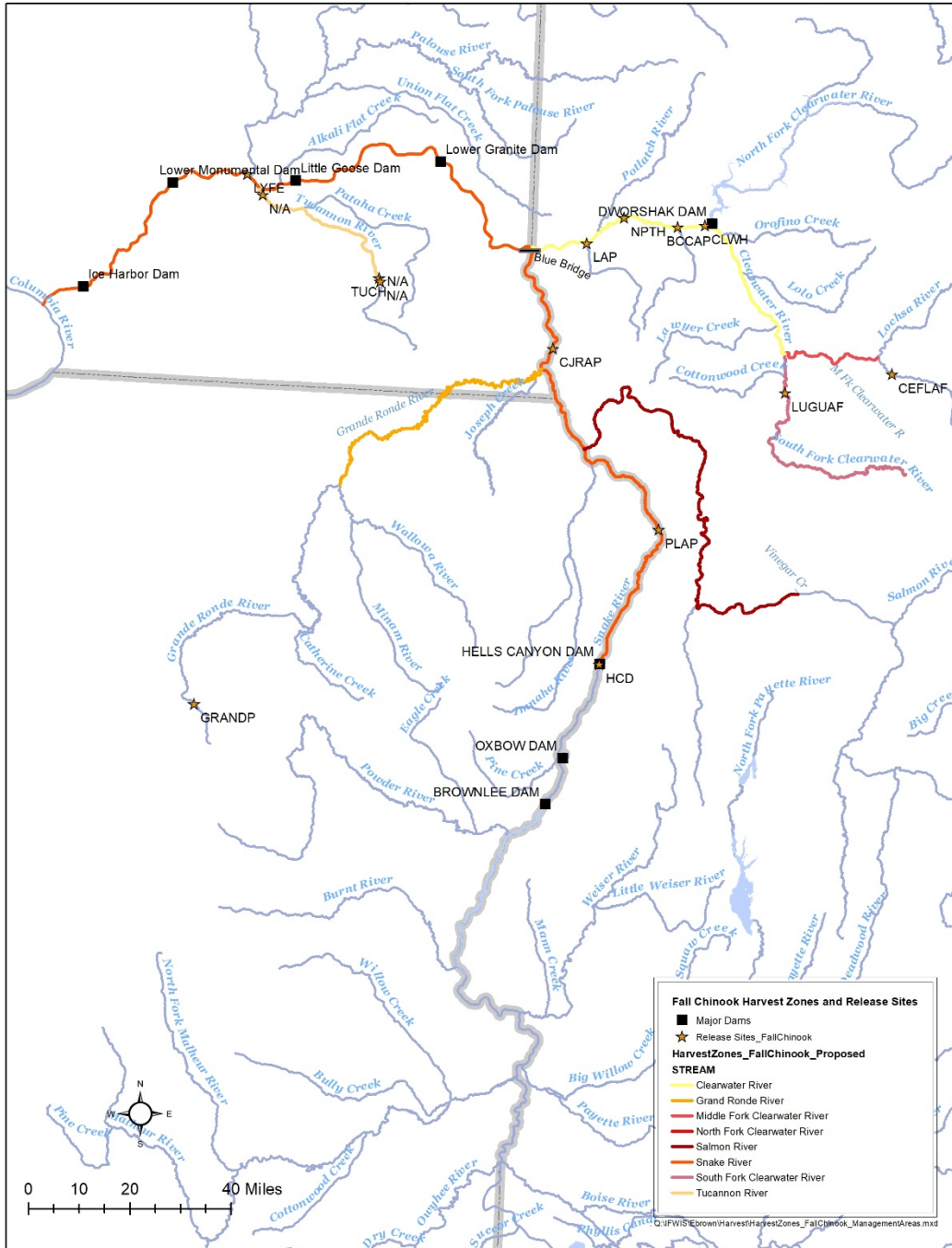


Figure 2. Map of Snake River Fall Chinook Salmon harvest zones and locations of hatchery releases.

**1.2.2) Description of the time periods in which fisheries occur within the management area.**

Time periods in which fisheries occur are either authorized by the Commission or through an emergency/temporary rule process for each state agency. We propose that retention fisheries for adipose-intact fall Chinook will open mid-August and close no later than November 31<sup>th</sup> for the FMAs described

above. The time-frames described below for the adipose-intact fisheries are the same as those that will be in place for ad-clipped Fall Chinook fisheries. Previous experience with recreational fisheries indicates that is unlikely that the season will last until the closing date and areas/times may be adjusted to minimize impacts to natural-origin fall Chinook Salmon.

Mainstem Snake River below Lower Granite Dam/Tucannon River: WDFW plans to propose fisheries on ad-intact and adipose-clipped fall Chinook beginning mid-August and ending when the harvest share has been met or when ESA take becomes restraining but no later than November 31<sup>st</sup>.

Mainstem Snake River above Lower Granite Dam: The States plans to propose fisheries on ad-intact and adipose-clipped fall Chinook beginning mid-August and ending when the harvest share has been met or when ESA take becomes restraining but no later than November 31<sup>st</sup>. IDFG and WDFW may jointly propose fisheries on the Snake River where it forms a boundary between Idaho and Washington. Joint fishery proposals will be coordinated to adopt reciprocal regulations between States.

Mainstem Snake River/Salmon River/Grande Ronde River: The States plan to propose fisheries on ad-intact and adipose-clipped fall Chinook beginning mid-August and ending when the harvest share has been met or when ESA take becomes restraining but no later than November 31<sup>st</sup>. IDFG and ODFW may jointly propose fisheries on the Snake River where it forms a boundary between Idaho and Oregon. The IDFG and WDFW may jointly propose fisheries on the Snake River where it forms a boundary between Idaho and Washington. Joint fishery proposals will be coordinated to adopt reciprocal regulations between States for the main stem Snake River reach.

Mainstem and tributaries of the Clearwater River: IDFG plans to propose fisheries on ad-intact and adipose-clipped fall Chinook beginning mid-August and ending when the harvest share has been met or when ESA take becomes restraining but no later than November 31<sup>st</sup>.

### **1.3) Listed salmon and steelhead affected within the Fishery Management Area specified in section 1.2.**

#### **Listed Populations Affected by Fall Chinook Fishery**

The SR fall Chinook Salmon ESU includes naturally spawned fish in the lower main stem of the Snake River and the Tucannon, Grande Ronde, Clearwater, Salmon, and Imnaha Rivers along with four artificial propagation programs (Lyons Ferry Hatchery, Fall Chinook Acclimation Ponds Program, Nez Perce Tribal Hatchery, and Oxbow Hatchery). Hatchery-origin fall Chinook are intended to spawn upstream of LGR in the areas where natural origin fall Chinook spawn and supplement natural spawning aggregates (WDFW et al. 2011).

Listed SR fall Chinook and SR steelhead may be affected by recreational fisheries targeting adipose-intact and adipose-clipped fall Chinook in the geographic areas described above. Anglers are required to have a Salmon Permit or a Catch Record Card to fish for and retain adipose-clipped hatchery fall Chinook and a Steelhead Permit or Catch Record Card to fish for and retain adipose-clipped hatchery steelhead and this requirement will continue to apply to anglers that fish and retain adipose-intact fall Chinook. We anticipate that the adipose-intact and adipose-clipped fall Chinook fisheries will have no additional impact for SR steelhead beyond what is currently authorized for SR summer steelhead (NMFS 2019). Impacts to naturally-produced fall Chinook will increase while the proposed adipose-intact fishery targets hatchery-origin Chinook that are surplus to conservation need and these impacts are addressed in this FMEP.

Listed SR spring/summer Chinook and SR sockeye are unlikely to be affected by recreational fisheries targeting adipose-intact fall Chinook because of non-overlapping run timing across Lower Granite Dam and spatial separation of spawning areas.

**1.3.1) Description of “critical” and “viable” thresholds for each population (or management unit) consistent with the concepts in the technical document “Viable Salmonid Populations and the Recovery of Evolutionarily Significant Units.”**

The FMEP definitions of viable thresholds and critical thresholds are based on and consistent with the Interior Columbia Technical Recovery Team’s (ICTRT) application of the guidance in “Viable Salmonid Populations and Recovery of Evolutionarily Significant Units” Technical Memorandum (McElhany et al. 2000). The recovery plan established a de-listing requirement to achieve highly viable status for a single population as a 10 year geometric mean abundance >4,200 natural origin spawners (NMFS 2017). The States propose to use 30% of the Viable Threshold (or MAT) to define a Critical Abundance Threshold (CAT) for this FMEP. A critical threshold of 30% MAT is equivalent to 1,260 natural origin spawners for SR fall Chinook. Snake River fall Chinook are managed as a single population with an integrated hatchery program under the fall Chinook HGMPs. The integrated hatchery fish are considered part of the Snake River fall Chinook ESU (NMFS 2017).

**1.3.2) Description of the current status of each population (or management unit) relative to its “Viable Salmonid Population thresholds” described above. Include abundance and/or escapement estimates for as many years as possible.**

The ESU includes naturally spawned fish in the lower main stem of the Snake River and lower reaches of the Tucannon, Grande Ronde, Salmon and Imnaha Rivers along with four artificial propagation programs. These hatchery programs have played a major role in production and recovery since the 1980s (NMFS 2012). Abundance of fall Chinook salmon is measured at LGR. Escapement above LGR has ranged from less than 1,000 adults in 1998 to greater than 52,000 adults in 2015 (Figure 1). The most recent five-year average (2014-2018) for adult escapement above LGR is 22,545 adults (averaging 8,366 hatchery adipose-clipped adults, 15,840 hatchery adipose-intact adults and 9,340 natural-origin adults, respectively). Natural-origin adult escapement above LGR has exceeded both the MAT since 2010 and CAT since 2001.

The ICTRT (2007) concluded that the Snake River drainage historically supported three populations of fall Chinook: the extant lower main stem population (below Hells Canyon Dam) and two populations above Hells Canyon Dam. Further analysis indicated that the two populations above Hells Canyon Dam were likely only one population. At present, only one of the historical populations is extant (main stem and tributaries below Hells Canyon Dam). The extirpated main stem population above the Hells Canyon dam complex was relatively large and productive, dominating production for this ESU. The recovery plan for fall Chinook recognizes multiple scenarios for recovery; with one scenario focusing on viability objectives for the lower main stem population as the only extant population in the ESU. In order to be highly viable and at low risk of extinction, the population needs to exceed the 1% viability curve and have a 10 year geometric mean of >4,200 natural-origin spawners. Given that this is the only extant population to date, the most recent status assessment and viability analysis focuses on the goal of achieving a highly viable status for this single population. Recovery strategies to restore fish passage and spawning and rearing habitat above Hells Canyon are currently being explored.

SR fall Chinook are at low risk for abundance and productivity and moderate risk for spatial structure/diversity in the NMFS (2016) status assessment evaluation. The ten year geometric mean in natural-origin abundance (2005-2014) is 6,418 with a standard error of 0-19 (NMFS 2016). Recent

productivity as measured as the average recruits for spawner for brood years 1990-2009 = 1.5 (NMFS 2016). The most current status review recognizes improvements in abundance relative to prior status reviews (Ford et al. 2010); however, there are uncertainties as to whether the abundance levels can be maintained given the large increase in escapement in the past three years and some uncertainty in the productivity of the population. The moderate risk rating for spatial structure/diversity was based on the following: 1) observed changes in life history traits, 2) genetic homogeneity from natural-origin returns despite the presence of multiple, distinct spawning areas, and 3) high levels of hatchery spawners in natural spawning areas. Combining these four parameters, the overall risk rating for fall Chinook is viable (low risk, Table 2).

Table 2. Viability assessment and risk ratings for Lower Snake River fall Chinook population using ICTRT criteria (NMFS 2016). Abundance is measured as the five-year geometric means of wild spawners counts. Productivity is measured using the ICTRT simple 20 year R/S method for brood years 1990-2009.

Metric	Time Series					Risk Rating (NMFS 2015)
	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014	
Abundance	333	548	3049	3662	11254	Low
Productivity		1.53				Low
Spatial Structure						Low
Diversity						Moderate

#### 1.4) Harvest Regime

##### 1.4.1) Provide escapement objectives and/or maximum exploitation rates for each population (or management unit) based on its status.

This FMEP addresses the harvest mortality of natural-origin fall Chinook as part of the steelhead, coho, and fall Chinook fisheries. A Snake River fall Chinook fishery on adipose-intact adults is expected to be in addition to an on-going fishery that already targets adipose-clipped fall Chinook, summer steelhead and proposed coho fisheries in the FMAs. We anticipate that the fall Chinook fishery will have no additional impacts on SR steelhead beyond those recently authorized (NMFS 2019). Impacts for the steelhead fishery are described under the FMEPs that have been submitted by IDFG, ODFW, and WDFW and the signed biological opinion for SR steelhead (NMFS 2019).

The harvest rate schedule developed by the States in this document for Snake River fall Chinook follows an abundance based framework like the U.S. v. Oregon Management Agreement (U.S. v. Oregon 2018). The U.S. v. Oregon 2018-2027 Management Agreement developed a harvest rate schedule that “provides a management structure that is responsive to the status of the species. Harvest may vary up or down depending on the overall abundance of unlisted upriver fall Chinook and listed natural-origin Snake River fall-run Chinook salmon” (see Table A3 in section 2.1.4). The harvest rate schedule is calibrated to provide higher harvest rates when abundance is high enough to accommodate the increased harvest and to provide reduced harvest rates, when numbers are lower. The natural-origin escapement has exceeded the recovery goal of 4,200 under the implementation of the U.S. v. Oregon harvest framework (US v. Oregon 2018) since 2008. The biological opinion for U.S. v. Oregon and the NMFS recovery plan both recognize that supplementation fish are part of the ESU and can be used to boost the abundance of natural-origin

spawners and reduce the overall risk of extinction. With a high proportion of the overall run comprised of adipose-intact hatchery fish that anglers cannot harvest, mark-selective fisheries have been limited in meeting conservation and harvest mitigation objectives and this harvest regime provides a mechanism for harvesting hatchery-origin fish.

The harvest scale is based upon the run size of natural-origin adults and will increase in steps relative to the MAT value (Table 3). The impact rates are maximum rates that include potential mortalities from caught and released fish in the sport fisheries for steelhead, ad-clipped and adipose-intact fall Chinook and coho fisheries. The entire broodstock needed for hatchery production is generally collected at LGD (~5,000 adults). Additional broodstock are collected at Lyons Ferry and Nez Perce Tribal Hatcheries, only as needed to reach production goals. The sliding scale will take into account escapement above Lower Granite Dam (after hatchery and natural broodstock has been collected at Lower Granite Dam). Within the Table 3 harvest rate schedule, total allowable harvest rates will be no lower than 6% and no higher than 20% + “44% on the margin”. A total allowable harvest rates of adipose-intact adult fall Chinook of 20% + “44% on the margin” would be allowed at natural escapements >5,040, of which recreational fisheries could access up to 50% of the total allowable take at these run sizes. At lower run sizes, tribal fisheries could access up to 78% of the allowable take at lower run sizes (Table 3). If escapement levels were to drop below 1,260 natural-origin adults; impact rates would be reduced to 1.5% in the non-tribal fishery and 4.5% in the tribal fishery.

Table 3. Total allowable harvest rate schedule for natural-origin fall Chinook at Lower Granite Dam, non-tribal and tribal harvest rate, maximum total allowable harvest, natural-origin take for non-tribal fisheries, and Proportion of ESA impacts occurring in the non-tribal state fisheries.

Natural-Origin Adult Run Size	Natural-Origin Adult Run Size Relationship to MAT	Non-tribal Harvest Rate**	Nez Perce Treaty Harvest Rate	Total (tribal and non-tribal) Allowable Harvest Rate	Natural-Origin Adult Take for Treaty fisheries		Proportion of ESA Impacts Occurring in Treaty Fisheries
					Lower	Upper	
0 – 1,260	0.0 - 0.3 MAT	1.5%*	4.5%	6.0%	0	57	75%
1,261 – 2,100	0.3 - 0.5 MAT	2.0%	6.0%	8.0%	76	126	75%
2,101 – 3,150	0.5 - 0.75 MAT	2.0%	7.0%	9.0%	147	221	78%
3,151 – 5,040	0.75 – 1.2 MAT	6.0%	8.0%	14.0%	252	403	57%
> 5,041	> 1.2 MAT	10% + “ 22% on margin”	10% + “22% on margin”	20% + “ 44% on margin”	>403		50%

\* At this tier, there is no directed take on ad-intact fall Chinook Salmon within the recreational fisheries, the impacts are incidental only to steelhead, coho, and mark selective fall Chinook fisheries.

\*\*If mark-selective fisheries are implemented, the non-treaty fisheries may not harvest more than 50% of the harvestable share.

The States propose that no directed harvest of adipose-intact fall Chinook would be allowed when natural-origin fall Chinook abundance is predicted to be below 1,260 adults; and as described above, all fishery impacts would be limited to incidental impacts during the steelhead, coho, and the mark-selective fall Chinook fisheries. Fishery impacts will be limited to less than 1.5% of the natural-origin run size at this tier. At the minimum natural-origin run size (1,260 fish) and assuming a 10% catch and release mortality, anglers would be allowed to handle a minimum of 189 natural-origin adults before exceeding the 1.5% impact.

There are a number of different escapement objectives that can be considered in this harvest framework. The Biological Requirements Workgroup (BRWG 1994), indicated that all large populations should have no fewer than 300 adults spawning annually. As mentioned above, the ICTRT (2007) recommended that at least 3,000 natural-origin adults spawn naturally and the recovery plan developed the MAT as 4,200 natural-origin adults for a single, population ESU. The proposed sliding scale will result in small decreases in natural-origin abundance when abundance is below MAT and achieve the threshold of 4,200 natural-origin spawners when natural-origin escapement is greater than 4,900 adults.

The escapement objectives listed above do not include hatchery-origin fish that are intended to supplement the natural spawning population. Hatchery-origin fish make up a larger component within the unmarked group, so by constraining the harvest rates to the number of natural origin returns in this non-selective fishery, there will still be adipose-intact hatchery adults that escape the fishery to spawn. In Table 4, we present total escapement rates of natural and adipose-intact hatchery adults after applying the harvest framework to varying levels of natural-origin returns. Annually, escapement levels more than double the number of natural-origin returns, after harvest. It is important to note that this does not include any jacks or hatchery origin adipose-clipped adults that may escape the fishery and spawn.

Table 4: Levels of fall Chinook adult escapement for unmarked adults (both natural-origin and hatchery-origin) at different levels of natural-origin abundance after harvest.

<b>Natural Adults</b>	<b>Adipose-Intact Hatchery Adults*</b>	<b>Total Abundance</b>	<b>Harvested Unmarked Adults (Hatchery and Natural)</b>	<b>Total Escapement (All Unmarked Adults)**</b>
500	700	1,200	72	1128
1,000	1400	2,400	144	2256
1500	2100	3,600	288	3312
2000	2800	4,800	384	4416
2500	3500	6,000	540	5460
3000	4200	7,200	648	6552
3500	4900	8,400	1176	7224
4000	5600	9,600	1344	8256
4500	6300	10,800	1512	9288
5000	7000	12,000	1680	10320

*\*The number of adipose-intact hatchery adults assumes that marking rates remain the same and is based upon the composition of adipose-intact hatchery adult in the total unmarked return. Approximately 40% of the unmarked return are of natural-origin.*

*\*\*This estimate does not include adipose-clipped hatchery fish that escape the fishery and spawn or jacks.*

Over the past decade (2009 – 2018), escapement of natural-origin adults above LGR has ranged from 4,273 adults to 20,132 adults and averaged 9,783 adults. After applying the harvest rate schedule to actual return levels (2009 – 2018), total escapement would range from 5,451 adults to 25,032 unmarked adults (of both natural-origin and hatchery-origin) distributed across the geographic areas. Additionally, the natural-origin MAT would have been exceeded from 2009-2017 (and dipped below MAT by 16 adults in 2018), after harvest has occurred. It is possible that in some years, the actual harvest rates will be less than the maximum allowed and further allow for greater numbers of spawning adults.

Strong compensation in survival and growth has been detected in the Snake River fall Chinook Salmon ESU. Ford et al. (2010) suggested that there may be an indication that density dependent habitat effects are influencing production and Cooney (unpublished results) indicated that there is a strong inference for density dependence effects at higher escapements. A recent analysis by Perry et al. (2017) indicates that density dependent effects may limit natural-origin recruitment when the numbers of spawners is between 5,000 – 10,000 female spawners, which is equivalent to 10,000 - 20,000 total adult spawners with an equal sex-ratio. In the analysis of Perry et al. (2017), both hatchery-origin and natural-origin fish are included in the spawner pool since hatchery fish co-mingle and spawn with natural-origin fall Chinook Salmon. Harvest is a tool that can be used to manage compensatory effects from density-dependence. Allowing retention of adipose- intact adult fall Chinook when escapements are high would provide a tool to manage spawner abundance to the habitat capacity and biological objectives of the SR fall Chinook population, while allowing recreational harvest opportunities. Using the past decade of return data, the above harvest schedule not only maintains the natural-origin population above MAT in most years, but total escapement ranges from ~8,700 to ~19,550 total spawners.

#### **1.4.2) Description of how the fisheries will be managed to conserve the weakest population or management unit.**

The management, season and rule making structure would be similar to other existing FMEPs, but would allow retention of adipose-intact fall Chinook when escapements meet certain criteria (Table 3). Under an abundance based harvest schedule, allowable harvest rates would increase in steps as described in section 1.4.1 (Table 3). When the natural-origin run size is less than 30% MAT, the States are proposing no directed harvest of adipose-intact fall Chinook and the impacts to fall Chinook Salmon are incidental to the steelhead, coho, and adipose-clipped fall Chinook fisheries. Additionally, when the natural-origin run size is less than CAT for consecutive years, the States would implement management changes to further minimize impacts to natural-origin fall Chinook. For example, the States may propose changes to the adipose-clipped Fall Chinook fishery in terms of times and places where fishing can occur and bag limits to minimize impacts to natural-origin adults.

Furthermore, managers intend to ensure that the distribution of take across the fishery zones will be in proportion to the number and distribution of natural spawner redd count data so that one segment of the population is not harvested in greater proportion than another segment of the population. The States propose to partition 5% of the impacts into the area below Lower Granite Dam (1% of the harvest), 47% of the impacts into the larger Snake River/Salmon River/Grande Ronde River FMA and 48% into the Clearwater River FMA. There is no spawning aggregate in this Snake River LGD to Blue Bridge geographic area and any harvested fish from this reach could be headed for either of the upstream reaches, so impacts occurring in this area would be passed to upstream reaches based on the proportions of the total redd counts that occur in those upstream reaches. As distributions of naturally-spawning Fall Chinook change relative to hatchery releases, these impact rates may be adjusted geographically.



The States intend to continue coordination with other salmon managers as currently implemented in existing Snake River spring/summer and fall Chinook fisheries (e.g., pre-season forecasts, in-season run size projections, harvest reporting, etc.).

Existing recreational fisheries in these areas target adipose-clipped hatchery steelhead and adipose-clipped fall Chinook populations (in the Snake River, and Clearwater River below Memorial Bridge) in excess of broodstock needs, consistent with Congressionally-mandated mitigation goals of the federal and private hatcheries, Treaty and non-Treaty harvest sharing and ESA limitations on allowable incidental mortality of natural-origin SR steelhead, coho, and fall Chinook.

**1.4.2) Demonstrate that the harvest regime is consistent with the conservation and recovery of commingled natural-origin populations in areas where artificially propagated fish predominate.**

SR fall Chinook are managed as an integrated hatchery program under the fall Chinook HGMPs (WDFW et al. 2011, NPT 2011). Hatchery programs produce fall Chinook primarily to meet mitigation objectives but also as a tool to rebuild natural spawning populations. Natural and hatchery broodstock are generally collected at LGD and adipose-clipped hatchery, adipose-intact hatchery, and natural fish (excess to hatchery broodstock needs) are released upstream to spawn naturally. LGD escapements since 2009 have ranged between ~11,700 to 51,200 total adults, and ~4,200 to 20,000 natural-origin adults, with a 10 year geometric mean of 9,783 natural adults and 23,550 hatchery adults. These levels of total escapement are approaching or exceeding some of the biological objectives of the HGMP (WDFW 2011). Ford et al. (2010) suggested that there may be an indication that density dependent habitat effects are influencing production or that high hatchery proportions may be influencing natural production rates and Cooney (unpublished results) and Perry et al. (2017) indicated that there is a strong inference for density dependence effects at higher escapements. This harvest regime provides an opportunity to retain adipose-intact fish encountered in sport fisheries, consistent with mitigation objectives of the hatchery programs. Allowing retention of adipose-intact adult fall Chinook when escapements are high would provide a tool to manage spawner abundance to the habitat capacity and biological objectives of the SR fall Chinook population, while allowing recreational harvest opportunities.

**1.5) Annual Implementation of the Fisheries**

The States anticipate an implementation framework similar to that used for existing FMEPs. A fisheries proposal will be annually submitted to NOAA fisheries and Tribes that describes expected run levels, outlines fishery parameters, and expected fishery impacts. The State Commissions have the authority to set and modify fishing seasons; salmon fishery rules are set pre-season based on run projections provided by the US v Oregon Technical Advisory Committee, and modified as necessary based upon in-season information updates. Rules may change in-season based on updated run-size projections of hatchery and natural runs, or fishery impacts, and seasons may be modified or closed as necessary. Coordination on fishing proposals, seasons and rules occurs pre-season and in-season between the States and with NOAA Fisheries, the NPT, CUITR, and SBT. Season and bag limits will be coordinated between States with the intent to provide consistency between state regulations and reporting of non-tribal impacts.

**SECTION 2. EFFECTS ON ESA-LISTED SALMONIDS**

**2.1) Description of the biologically-based rationale demonstrating that the fisheries management strategies will not appreciably reduce the likelihood of survival and recovery of the affected ESU(s) in the wild.**

SR fall Chinook are managed as an integrated hatchery program, with mixing of natural and hatchery-origin fish occurring in the spawning areas (WDFW et al. 2011, NPT 2011). The fall Chinook hatchery program has contributed to increased natural and hatchery escapements in the past decade (Figure 1). The most recent status review (Ford et al. 2010; NMFS 2011a; NMFS 2015) noted that SR fall Chinook abundance has increased substantially since they were listed. Natural-origin spawner proportions have also increased dramatically in recent years – on average, a 207% percent over the last decade (NMFS 2015). While there is some uncertainty into future environmental conditions (e.g., ocean productivity and the potential for climatic conditions) to reduce the likelihood of recovery, fall Chinook appear to be impacted to less of an extent than other salmon and steelhead species. This is likely due to differences in life-history and migratory pathways/rearing areas in the ocean. This recent change and dip in abundance is likely a result of ocean climatic anomalies (e.g. the “blob”; Bond et al. 2015) that persisted from 2013-2016. Despite this climatic event, the total abundance of the fall Chinook population has remained in the tens of thousands and the natural-origin run size at LGD has exceeded MAT from 2016-2018. Spring Chinook entering the ocean in the same year have had much lower returns, in comparison (NMFS 2016). The pattern for population productivity for fall Chinook is currently uncertain because of imprecision in some of the underlying data and lack of standardization for the effects of density dependence on recruitment performance (NMFS 2011, 2016). Despite some uncertainty in productivity, the ESU currently has a low risk rating for abundance and productivity (NMFS 2016).

The States believe that allowing retention of adipose-intact SR fall Chinook under the proposed harvest rate schedule is unlikely to reduce the likelihood of survival and recovery of the affected ESU in the wild. The total allowable mortality rate schedule is scaled to restrict harvest rates when LGD escapements are low, and allow greater harvest when abundance increases (Table 3). Sport fisheries are designed to limit natural-origin fish impact to a maximum of 1.5% when run levels remain below 1,260 natural-origin adults. Fishery monitoring will be conducted and fishery locations and time-periods may be adjusted to further minimize impacts at low abundance.

The States propose to manage the recreational steelhead fishery under the framework recently approved by NMFS (2019). All incidental mortality rates for SR Steelhead within the fall Chinook adipose-intact and adipose-clipped fisheries would be included in the impact rates for Snake River steelhead (NMFS 2019).

#### **2.1.1) Description of which fisheries affect each population (or management unit).**

SR steelhead populations and the SR fall Chinook population that may be encountered in the proposed adipose-intact fall Chinook retention fishery in each of the management units and river sections are identified in Table 5 (also see Section 1.3). Populations which spawn in or pass through a management unit are identified as “primary encounters” (X); steelhead populations which may stage in a management unit, or fall Chinook which spawn in small numbers within a management unit are identified as “minor encounters” (x). As described below, we do not anticipate any additional impacts to SR steelhead from the proposed fisheries and any incidental take of fall Chinook within the SR steelhead fishery is included in this sliding scale.

Table 5. SR steelhead and fall Chinook populations potentially affected by recreational fisheries targeting adipose-intact fall Chinook in two fishery management areas. (X = primary encounters, x = minor encounters). River sections are IDFG steelhead harvest reporting sections.

SR Steelhead DPS: MPG, Population	Mainstem Snake		Lower Mainstem Clearwater
	Sec 1	Sec 2	Sec 3
<b>Lower Snake River</b>			
Tucannon River	x		x
Asotin Creek	X		x
<b>Grande Ronde River</b>			
Joseph Creek	X		x
Lower Grande Ronde R.	X		x
Wallowa R.	X		x
Upper Grande Ronde R.	X		x
<b>Imnaha River</b>			
Imnaha River	X	x	x
<b>Clearwater MPG</b>			
Lower Mainstem Clearwater	x		X
Lolo Cr.	x		X
South Fork Clearwater	x		X
Lochsa R.	x		X
Selway R.	x		X
<b>Salmon MPG</b>			
Little Salmon R.	X	x	x
Chamberlain Cr.	X	x	x
South Fork Salmon R.	X	x	x
Secesh R.	X	x	x
Lower Middle Fork Salmon R.	X	x	x
Upper Middle Fork Salmon R.	X	x	x
Panther Cr.	X	x	x
North Fork Salmon R.	X	x	x
Lemhi R.	X	x	x
Pahsimeroi R.	X	x	x
Upper Salmon East Fork	X	x	x
Upper Salmon Mainstem	X	x	x
<b>Hells Canyon Tributaries</b>			
Remnant of Wild Horse/ Powder	X	X	x
<b>SR Fall Chinook ESU</b>	<b>X</b>	<b>X</b>	<b>X</b>

**2.1.2) Assessment of how the harvest regime will not likely result in changes to the biological characteristics of the affected ESUs.**

SR fall Chinook are managed under the HGMPs as an integrated hatchery program to promote interchange between natural and hatchery spawners with natural-origin adults used in the broodstock and hatchery adults being allowed to spawn in the natural environment. The proposed fishery would not be directed at any particular age or size of the run and thus poses low to very low risk to selective change in natural process or selective impacts to biological characteristics of the fall Chinook ESU. Selectivity would occur if an activity resulted in greater mortality on certain segment(s) of a population than others (e.g., early adult run timing, larger sizes, older ages), and if selection intensity and heritability of the trait is high (ICTRT 2007). As more information becomes available regarding the composition and distribution of hatchery origin and natural-origin fish from the creel, the proposed fishery may modify harvest triggers, bag limits, and closures to target hatchery-origin fish and further minimize impacts to natural-origin fall Chinook.

A non-selective fishery on SR fall Chinook at the run sizes proposed under this FMEP would pose little or no additional risk to biological diversity of the affected SR steelhead DPS. The States anticipate that the fishery will provide harvest opportunity for anglers already targeting hatchery steelhead in an ongoing fishery but that anglers will shift to utilizing techniques that target fall Chinook when steelhead catch

rates are low, when bag limits have been met, or to target salmon. As a result, we are not proposing any increases to the impact rates of SR steelhead.

### **2.1.3) Comparison of harvest impacts in previous years and the harvest impacts anticipated to occur under the harvest regime in this FMEP.**

IDFG monitors the harvest of hatchery steelhead and hatchery fall Chinook through angler surveys while WDFW and ODFW use angler surveys and Catch Record Cards. Existing fishery data from 2010 – 2016 indicates that the non-tribal fishery is utilized by the following anglers: Idaho anglers harvest ~55% of the fall Chinook, Oregon anglers harvest approximately 11% of the fall Chinook and Washington anglers harvest 34% of the fall Chinook. Recent SR fall Chinook impacts from fisheries managed under IDFG's existing recreational steelhead and fall salmon fisheries averaged about .88% incidental mortality rate. Incidental mortality of fall Chinook within Washington's existing recreational fisheries below LGR has ranged from 0.7% to 1.2% (NMFS 2019). Data from ODFW is not currently available, but likely to be less than 0.2% of the natural-origin run at LGR (NMFS 2019). We anticipate that the impact rates will increase as a result of directed take and not exceed what is outlined in the sliding scale. Incidental mortality rates are calculated by applying a 10% catch-and-release mortality rate to the encounter rate.

Encounter rates are calculated using creel data collected throughout the fall Chinook sport fishery season. The number of steelhead anglers that encounter an adipose-intact Fall Chinook (and do not have a salmon permit) and are fishing during the fall Chinook season are also calculated. In order to derive this estimate, we estimated catch rates of adult Chinook Salmon caught by steelhead anglers in different river sections in Idaho using interview data collected during creel surveys. Then we used the IDFG steelhead phone survey data to estimate the total number of days steelhead anglers fish. Because this data only provides the number of days anglers fished, we assumed that anglers fished on average 6 hours per day. The total number of adult fall Chinook Salmon caught and released in the different river reaches was then calculated by dividing the total number of hours fished by steelhead anglers by the catch rate (fish/hour). Encounter rates of natural-origin adults within the IDFG Fall Chinook fisheries have ranged from 2.5% in 2009 to 12.1% in 2010 and encounter rates from both the IDFG steelhead and fall Chinook fisheries ranges from 4.6% in 2009 to 14.15% in 2010.

The 10% catch and release mortality rate was based upon the rate adopted by NMFS within the Biological Opinion for Spring/Summer Chinook Salmon fisheries (NMFS 2011b), the U.S. v. Oregon Technical Advisory Committee and the rates adopted for incidental catch within the steelhead fisheries (NMFS 2019). The signed biological opinion for Spring/Summer Chinook referenced the following studies: Schroeder et al. (2000), Bendock and Alexandersdottir (1993), and Lindsay et al. (2004). All of these studies reported hooking mortalities of less than 10%, except for the Lindsay et al. (2004) study where hooking mortality was reported at 12.3%. This study reported that a large portion of the hooking mortality was related to deep hooking. In addition to these studies, the WDFW conducted a multi-year study in the Yakima River (Fritts et al. 2016). The reported hooking mortality rates to the spawning area (median of 56 days) were 6% in 2013 and 12% in 2014, with slightly higher rates when the time-point was extended to the onset of spawning (median of 97 days, 11%, and 12%, respectively). The higher mortality in 2014 compared to 2013 was attributed to a greater percentage of fish hooked in critical locations (Fritts et al. 2016). The average hooking mortality rate across years was 10%. Cowen et al. (2007) caught-and-released 4,634 Chinook Salmon and reported a hooking mortality rate of .9%. Cowen et al. (2007) also captured Chinook for broodstock and reported that 2.5% died prior to spawning. These are the lowest mortality rates reported to date. Therefore, we believe that the 10% rate is appropriate for fall Chinook Salmon.

Based on the information from the 2008-2017 mark-selective fall Chinook recreational fisheries above LGD, we estimated that allowing retention of all encountered adipose-intact fall Chinook would have resulted in a potential harvest of natural-origin adults in the range of 49 (2008) to 2,743 adults (2013; Table 6). This calculation uses the estimate of encountered and released adipose-intact adults (range, 129 - 4,798) and the observed ratio of natural-origin fish within the adipose-intact return (range 31% to 57%, avg. 40%) Using 2009 as an example, in that year, 295 adipose-intact adults were estimated to have been caught and released. Assuming that anglers had kept 100% of the captured adipose-intact adults and the proportion of natural-origin adults in the adipose-intact group is 38%, then 93 natural-origin adult would have been harvested, which is 2.2% of the total natural escapement. The calculated impacts range from 1.6% to 13.6% of the natural-origin return annually if all of the adipose-intact fish were harvested. These estimated rates are below those listed under the proposed sliding scale, but these rates do not include any incidental take from other fisheries and the scale also allows for some increased take as a result of increased effort that will result from this addition fishery.

Table 6. Fall Chinook harvest data from 2008-2017 upstream of the ID/WA border by Idaho, Washington and Oregon anglers including the number of marked adults harvested, number of marked adults released, and number of unmarked adults released in the Snake and Clearwater Rivers. Potential harvest rate of natural-origin SR fall Chinook in recreational fisheries upstream of the ID/WA border by Idaho, Washington and Oregon anglers that would have occurred in 2008-2017, assuming retention had been allowed for 100% of the unmarked (adipose-intact) fish compared to harvest rates from the above sliding scale.

Year	Lower Granite Escapement					Snake			Clearwater			Total			Total Unmarked	% Unmarked adults kept	Potential harvest natural adults	Potential harvest rate natural adults	Recreational Harvest Rate in Sliding Scale
	Total adults	Marked hatchery adults	Unmarked hatchery adults	Natural adults	Total unmarked	Marked adults kept	Marked adults released	Unmarked adults released	Marked adults kept	Marked adults released	Unmarked adults released	Marked adults kept	Marked adults released	Unmarked adults released					
2008	11,925	4,089	4,841	2,995	7,836	97	0	129	0	0	0	97	0	129	129	100.0%	49	1.6%	2.0%
2009	20,685	7,115	9,297	4,273	13,570	110	64	295	0	0	0	110	64	295	295	100.0%	93	2.2%	6.0%
2010	39,764	17,464	14,953	7,347	22,300	636	325	1927	65	19	80	701	344	2007	2007	100.0%	661	9.0%	14.0%
2011	23,580	7,501	8,008	8,071	16,079	316	78	781	37	3	92	353	81	873	873	100.0%	438	5.4%	15.0%
2012	30,363	9,709	9,349	11,305	20,654	447	201	1707	65	6	157	512	207	1864	1864	100.0%	1020	9.0%	17.0%
2013	51,208	15,997	15,079	20,132	35,211	1324	231	3866	266	36	932	1590	267	4798	4798	100.0%	2743	13.6%	19.0%
2014	50,343	15,926	22,518	11,899	34,417	632	126	2,180	183	24	398	815	150	2578	2578	100.0%	891	7.5%	17.0%
2015	52,285	13,173	24,078	15,034	39,112	648	43	2508	138	5	404	786	48	2912	2912	100.0%	1119	7.4%	18.0%
2016	32,145	7,586	15,797	8,762	24,559	379	67	1433	87	2	231	466	69	1664	1664	100.0%	594	6.8%	15.0%
2017	11,706	1,516	5,320	4,870	10,190	310	101	450	14	27	88	324	128	538	538	100.0%	257	5.3%	6.0%

**2.1.4) Description of additional fishery impacts not addressed within this FMEP for the listed ESUs specified in section 1.3. Account for harvest impacts in previous year and the impacts expected in the future**

SR fall Chinook experience substantial harvest in ocean and Columbia River fisheries. These fisheries are coordinated through the Pacific Salmon Commission and the U.S. regional fisheries management councils and regulated through a Pacific Salmon Treaty, U. S. v. OR negotiations and/or NOAA Fisheries authorization processes. Ocean and in-river exploitation rates for SR fall Chinook, 1980-2006, are described in the NMFS (2008) Section 7(a)(2) Biological Opinion Consultation on the Approval of Revised Regimes under the Pacific Salmon Treaty and Deferral of Management to Alaska of Certain Fisheries Included in those Regimes. From 1986-1991, the total exploitation rate in ocean and in-river fisheries averaged 75%. Total harvest of Snake River fall Chinook was reduced substantially after they were first listed under the ESA in 1992 (NMFS 2008; p. 7-8). Since 1992 the total exploitation rate for all fisheries averaged 48%. NMFS (2008; p. 7-13) states that NOAA Fisheries has managed ocean fisheries to a single ESA Section 7 consultation standard since 1996. The standard requires all ocean fisheries contained in the SE Alaskan, Canadian, and PFMC fisheries collectively achieve a 30% reduction in the age-3 and age-4 adult equivalent total exploitation rate relative to the 1988 to 1993 base period. NMFS (2008) concluded with certainty that ocean fisheries will be managed pre-season to meet or exceed the 30% reduction requirement. Currently, about 10% of the take occurs in the Southeast Alaska fishery, 22% in the Canadian fishery, 26% in the coastal fishery and 42% in the Columbia River fishery.

Harvest impacts of adult SR fall Chinook in the main stem Columbia River are managed under the framework of the U.S. v. Oregon 2018-2027 Management Agreement (US v. OR 2018), using an abundance based sliding scale. Under the 2018-2027 Management Agreement total allowable harvest impacts on natural SR fall Chinook range from 20% to 45% depending on run sizes of upriver bright fall Chinook and natural-origin fall Chinook. Upriver brights are defined as all fall Chinook Salmon originating upstream of McNary Dam but also includes the Dechutes River. The Snake River wild harvest rate is assumed to be the same as the Upriver Bright harvest rate in the main stem. The Snake River fall-run Chinook salmon run size has increased from an average of 14,821 salmon returning to the mouth of the Columbia River from 2008-2012 to 23,684 salmon from 2013-2016 (TAC 2017). The total harvest rate has ranged from 17.5 to 32.0% since 2008. In most years, the actual harvest rates are less than the maximum allowable harvest rates; the average harvest rate on natural-origin fall Chinook Salmon has averaged 11.4% and 21.6 since 2008 for non-tribal and tribal fisheries, respectively (TAC 2017). The fall season harvest rate schedule under the 2018-2027 Management Agreement (US v. OR 2018) is shown as Table A3 below.

**Excerpted from US v OR (2018): State/Tribal proposed upriver bright Chinook salmon harvest rate schedule**

**Table A3. Fall Management Period Chinook Harvest Rate Schedule.**

Expected URB River Mouth Run Size	Expected River Mouth Snake River Natural Origin Run Size <sup>1</sup>	Treaty Total Harvest Rate	Non-Treaty Harvest Rate	Total Harvest Rate	Expected Escapement of Snake R. Natural Origin Past Fisheries
< 60,000	< 1,000	20%	1.50%	21.50%	784
60,000	1,000	23%	4%	27.00%	730
120,000	2,000	23%	8.25%	31.25%	1,375
> 200,000	5,000	25%	8.25%	33.25%	3,338
	6,000	27%	11%	38.00%	3,720
	8,000	30%	15%	45.00%	4,400

**Footnotes for Table A3**

1. If the Snake River natural fall Chinook forecast is less than the level corresponding to an aggregate upriver bright (URB) run size, the allowable mortality rate will be based on the Snake River natural fall Chinook run size
2. Treaty Fisheries include: Zone 6 ceremonial, subsistence, and commercial fisheries from Aug 1-Dec 31.
3. Non-Treaty Fisheries include: commercial and recreational fisheries in Zones 1-5 and mainstem recreational fisheries from Bonneville Dam upstream to the confluence of the Snake River and commercial and recreation SAFE (Selective Areas Fisheries Evaluation) fisheries from August 1-December 31.
4. The Treaty Tribes and the States of Oregon and Washington may agree to a fishery for the Treaty Tribes below Bonneville Dam not to exceed the harvest rates provided for in this Agreement.
5. Fishery impacts in Hanford sport fisheries count in calculations of the percent of harvestable surplus achieved.
6. When expected river-mouth run sizes of naturally produced Snake River fall Chinook equal or exceed 6,000, the States reserve the option to allocate some proportion of the non-treaty harvest rate to supplement fall Chinook directed fisheries in the Snake River.

In addition to the incidental mortality in the States recreational fisheries targeting adipose-clipped hatchery SR steelhead and adipose-clipped hatchery fall Chinook and coho, natural SR steelhead are subject to direct and incidental mortality in Treaty Indian fisheries within Idaho, conducted by the NPT and SBT. This incidental mortality is discussed in submitted FMEPs.

**SECTION 3. MONITORING AND EVALUATION**

**3.1) Description of the specific monitoring of the “Performance Indicators” listed in section 1.1.3.**



The States proposes to continue the monitoring programs to estimate the harvest, effort and incidental mortality of listed salmon and steelhead, which are routinely conducted pursuant to existing permits. Specifically:

- The steelhead fishery is monitored by IDFG using a roving creel survey and a telephone survey; while both WDFW and ODFW use creel and Catch Record Cards. The same monitoring and reporting has been continued under the FMEP.
- The SR fall Chinook fisheries targeting adipose-clipped hatchery Chinook have been monitored using roving creel surveys or with Catch Record Cards, and will continued to be reported under the FMEP for both adipose-clipped and adipose-intact fall Chinook.
- While there has been no annual monitoring of the resident fish fishery in the state's anadromous fish waters, past creel surveys have documented the low level of incidental encounters of listed salmon and steelhead in this fishery.
- Additionally, Parentage Based Tagging (PBT) analyses will be conducted annually using samples from the harvested, adipose-intact fall Chinook adults to determine the proportion and number of natural fish harvested in each fishery. PBT has been in place for all of the hatcheries since 2011 (2016 return year). If PBT samples are not available, the States will assume that 50% of the adipose-intact group is natural-origin.

Funding is available to the States to implement monitoring programs, and minimize and mitigate impacts through; 1) the sale of fishing licenses, 2) Lower Snake River Compensation Plan, 3) contracts with the Idaho Power Company and, 4) the Dingle/Johnson Program.

### **3.2) Description of other monitoring and evaluation not included in the Performance Indicators (section 3.1) which provides additional information useful for fisheries management.**

Dam counts of fall Chinook passing Columbia and Snake River dams, LGD trap sampling and broodstock collection provide information about combined run size and timing relative to past years. Post-season run reconstruction allows for estimation of natural-origin and hatchery-origin run size of SR fall Chinook, including the number of adipose-intact hatchery adults. PIT tagged hatchery fall Chinook allows for estimation of specific hatchery adult run-sizes, and evaluation of FCRPS management actions. Fall Chinook redd counts conducted by NPT, USFWS, and IPC provides an estimate of spawning distribution and success in the natural environment.

### **3.3) Public Outreach**

Fishing rules adopted by the State Commissions may be accessed online for; 1) [IDFG](#), 2) [ODFW](#), and 3) [WDFW](#). In general, fishing rules limit not only harvest, but also disturbance of fish, particularly adult spawners. Specialized rule and gear restrictions, such as use of barbless hooks help minimize mortality when non-targeted species are caught and released.

The States dedicate a substantial amount of time and effort to inform anglers and non-anglers regarding the conservation of native fishes. Subjects include fishing seasons and rules, fish identification, management rationale, and major threats to populations. We use printed material, regulation pamphlets, news releases, and signs at specific locations. We use radio and television contacts including call-in radio shows. We host public meetings and give presentations to schools, and a variety of sportsman's organizations and local civic groups. Creel surveys designed for fisheries monitoring will be utilized to inform anglers regarding the status of fish populations and habitat, recovery efforts, and the importance of

proper fish handling techniques as well as other related topics. The high degree of compliance with fishing rules, particularly the adipose-clip rule for salmon and steelhead show that anglers understand and are willing to comply with these rules. Illegal take of adult salmon and steelhead has been minimal.

### **3.4) Enforcement**

The States provide an enforcement presence during any open season. Law enforcement staff patrol the recreational fisheries both in uniform, and in plain clothes. In addition IDFG biological staff are authorized to enforce fishing rules. The combined presence of enforcement officers and biological staff conducting creel surveys provides excellent monitoring. A report of activities including the number of licensed checked, and number and types of violations will be included in the post season fishery report.

The low incidence of serious violations that would adversely impact listed fish confirms that both the public education and enforcement activities conducted by the States work effectively. In addition to law enforcement measures taken, creel survey crews and check station operations, and Citizens Against Poaching programs provide a significant deterrent to deliberate illegal take of listed species.

### **3.5) Schedule and process for reviewing and modifying fisheries management.**

#### **3.5.1) Description of the process and schedule that will be used on a regular basis (e.g. annually) to evaluate the fisheries, and revise management assumptions and targets if necessary.**

The States propose the following process and schedule. The States will provide the annual preseason fishery plans by July 31 and consult with NOAA Fisheries with any substantive new rule proposals. Proposals will be developed consistent with FMEP objectives. The Commissions from each state will authorize annual salmon seasons and rules. The States will coordinate in-season with each other, Tribes, NOAA Fisheries and other entities on status of run size, harvest and escapements. The States will provide NOAA Fisheries with annual post season reports in the year and a half following the fishery to allow time to process and analyze the PBT data and Catch Record Cards and allow time to analyze incidental take of fall Chinook within the steelhead fishery. For examples, a fishery conducted in 2017 would have final reporting submitted by April 15<sup>th</sup>, 2019.

#### **3.5.2) Description of the process and schedule that will occur every X years to evaluate whether the FMEP is accomplishing the stated objectives. The conditions under which revisions to the FMEP will be made and how the revisions will likely be accomplished should be included.**

The States propose a five-year review schedule to evaluate whether the FMEP is accomplishing the stated objectives. The FMEP may be revised or modified accordingly to accommodate recommendations from recovery plans, harvest management plans, hatchery production and management plans, biological opinions, or other appropriate mechanisms. The States expects written notification by NOAA Fisheries of new information or policies related to the FMEP, and the States in consultation with NOAA Fisheries will propose appropriate modifications to this FMEP.

## **SECTION 4. CONSISTENCY OF FMEP WITH PLANS AND CONDITIONS SET WITHIN ANY FEDERAL COURT PROCEEDINGS**

The IDFG, WDFW, and ODFW are parties to the U.S. v. Oregon process and are affected by the 2018-2027 Management Agreement. Development of this FMEP is consistent with the expectations defined in

the 2018-2027 U.S. v. Oregon Management Agreement. The States have coordinated with the NPT, SBT, and CTUIR during development of strategies in this FMEP.

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