

**Calendar Year 2020
Annual Operation Plan
for
Salmon and Steelhead
Production Programs
in the
Salmon and Snake River Basins**

Prepared by

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0. Preamble

The Annual Operating Plan (AOP) meeting and AOP/SOP documents are planning, coordination and logistics tools that identify the expected implementation of a number of hatchery operation and research/monitoring activities for the coming year in a transparent, open manner.

It is the responsibility of all AOP parties to participate in AOP meetings, provide follow up information and assistance as requested or needed, and work in good faith to complete the AOP document within the timeframe agreed upon at the AOP coordination meeting. A finalized electronic version of the AOP will be available to all cooperating agencies and serve as the working version of the document.

If a disputed or incomplete item is identified at the AOP meeting and persists to the end of the agreed completion timeframe for finalizing the AOP documents, the AOP will be finalized without the disputed or incomplete section. However, parties to the dispute will add a placeholder in the document, so they can work toward resolution.

After the AOP is finalized, and based on unforeseen or unanticipated circumstances (e.g., lower than expected returns, loss of production, infrastructure issues as examples), changes or deviations from the AOP may be warranted. In those cases, there is an expectation that the lead agency that has identified the issue will communicate with the appropriate AOP parties, through the weekly coordination calls or by email, so they can work collaboratively to address it and/or work towards resolution. Implemented changes should be documented in writing by the lead agency and communicated, to ensure transparency and as documentation of the change. These changes should also be captured in various year-end reports.

1. Summer Steelhead

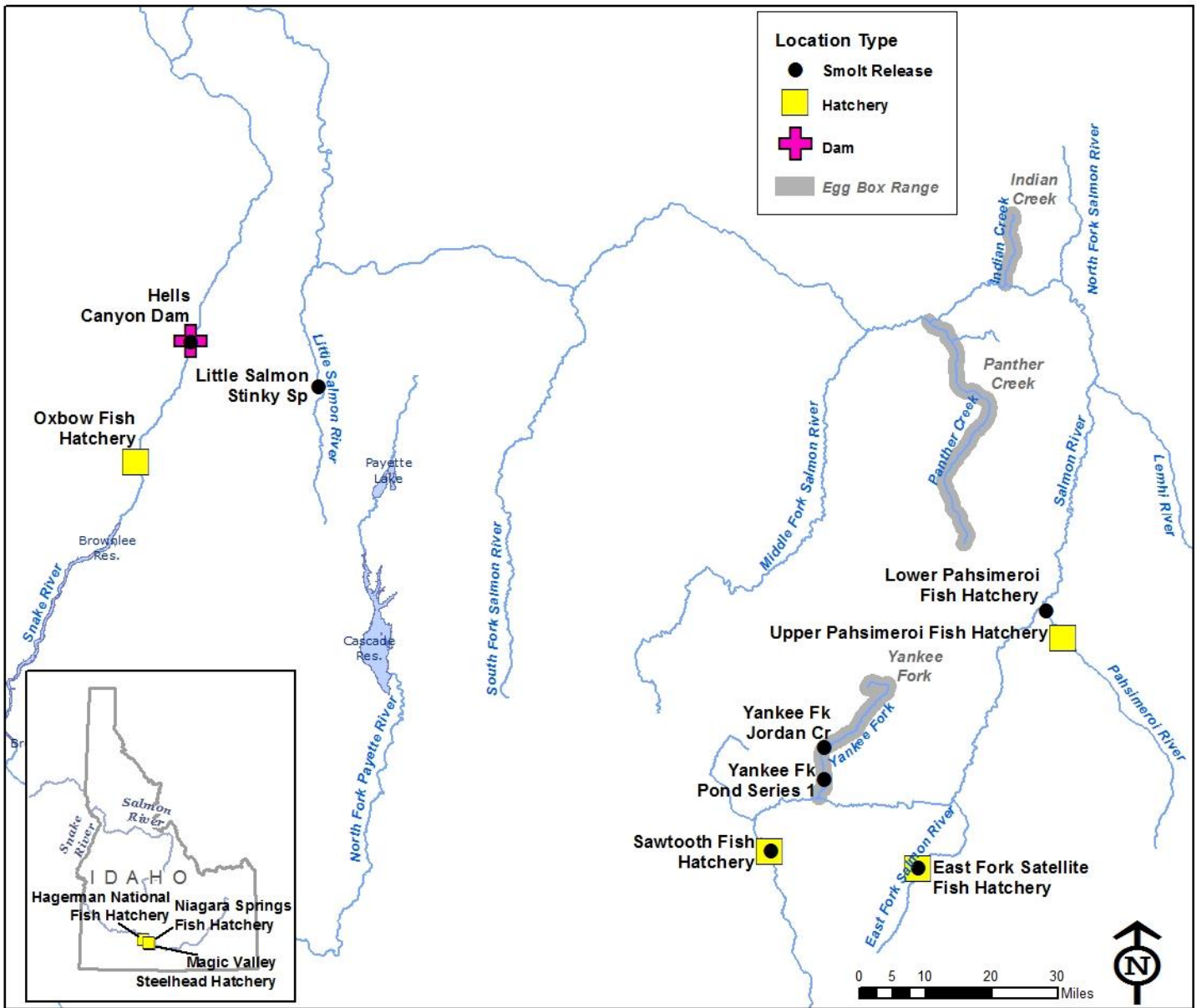


Figure 1.1. Steelhead facilities, smolt releases and egg box locations.

Table 1.1. Steelhead Release Goals.

Smolt Release Program	Rearing Facility	Release Site	Parent Stock	BY 2019 Smolt Release Goal
LSRCP / IDFG	HNFH	Sawtooth Weir ²	SawA	1,410,000
	HNFH	Sawtooth Weir (PRAS Eval)	SawA	90,000
	HNFH	E. Fork Salmon R. - Upper	EFNat	60,000
	Total			1,560,000
	MVFH	Sawtooth Weir	SawA	279,000
	MVFH	Little Salmon R. - Stinky Sp.	PahA	186,000
	MVFH	Pahsimeroi Weir ¹	USRB	251,000
	MVFH	Pahsimeroi Weir	DworB	93,000
	MVFH	Yankee Fork ¹	USRB/DworB	524,000
	MVFH	Little Salmon - Stinky Sp.	USRB/DworB	217,000
Total			1,550,000	
IPC / IDFG	NSFH	Pahsimeroi Weir	PahA	800,000
	NSFH	Little Salmon R. - Stinky Sp.	PahA	200,000
	NSFH	Little Salmon R. - Stinky Sp.	OxbA	250,000
	NSFH	Snake R. Hells Canyon	OxbA	550,000
Total			1,800,000	
Grand Total				4,910,000

Egg Box Program	Hatchery Egg Source	Egg Box Site	Parent Stock	Egg Box BY2020 Outplant Goals
SBT	PFH	Yankee Fork	USRB/DworB ¹	500,000
		Panther Creek	PahA	400,000
		Indian Creek	PahA	100,000
		Total		

¹ If smolt releases for Yankee Fork and Pahsimeroi are met and egg box needs cannot be met with USRB eggs, then DworB eggs will be considered for the SBT egg box program if available

¹ Release goals for the USRB stock were changed in June of 2019 to shift 96,000 unclipped smolts from the Yankee Fork release group to the Pahsimeroi release group in an effort to increase future adult returns to the weir.

² Totals include two 90k groups for PRAS evaluation

1.1. Timeline and Flowchart for Steelhead Production

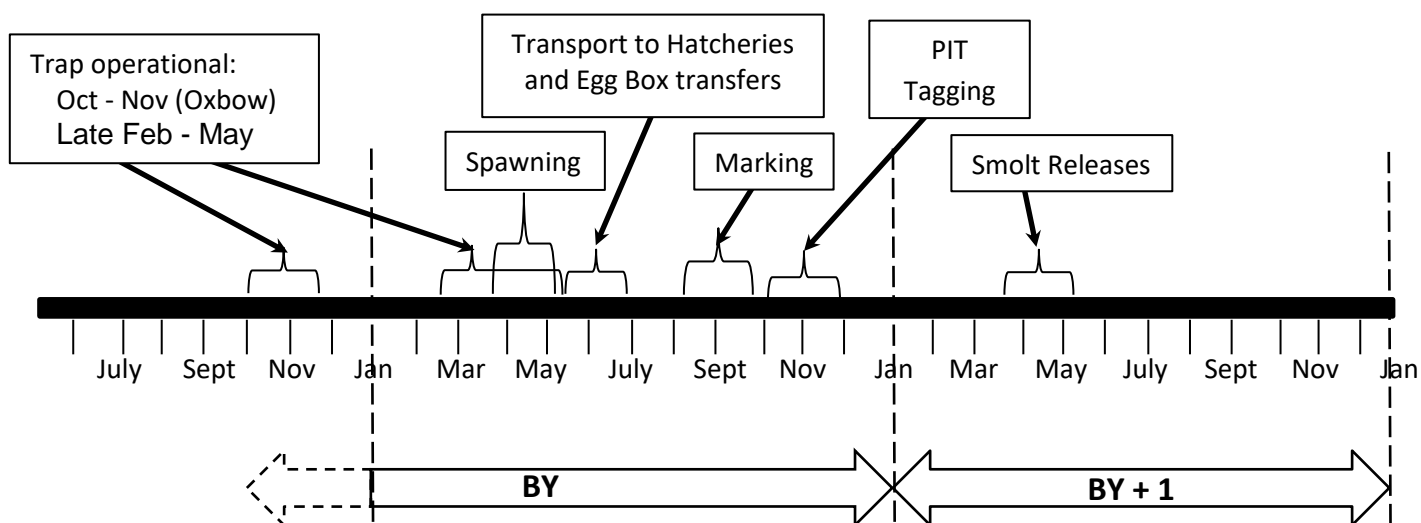


Figure 1.2. Timeline for Steelhead Production. Date ranges are shown to include all facilities' operations

STEELHEAD

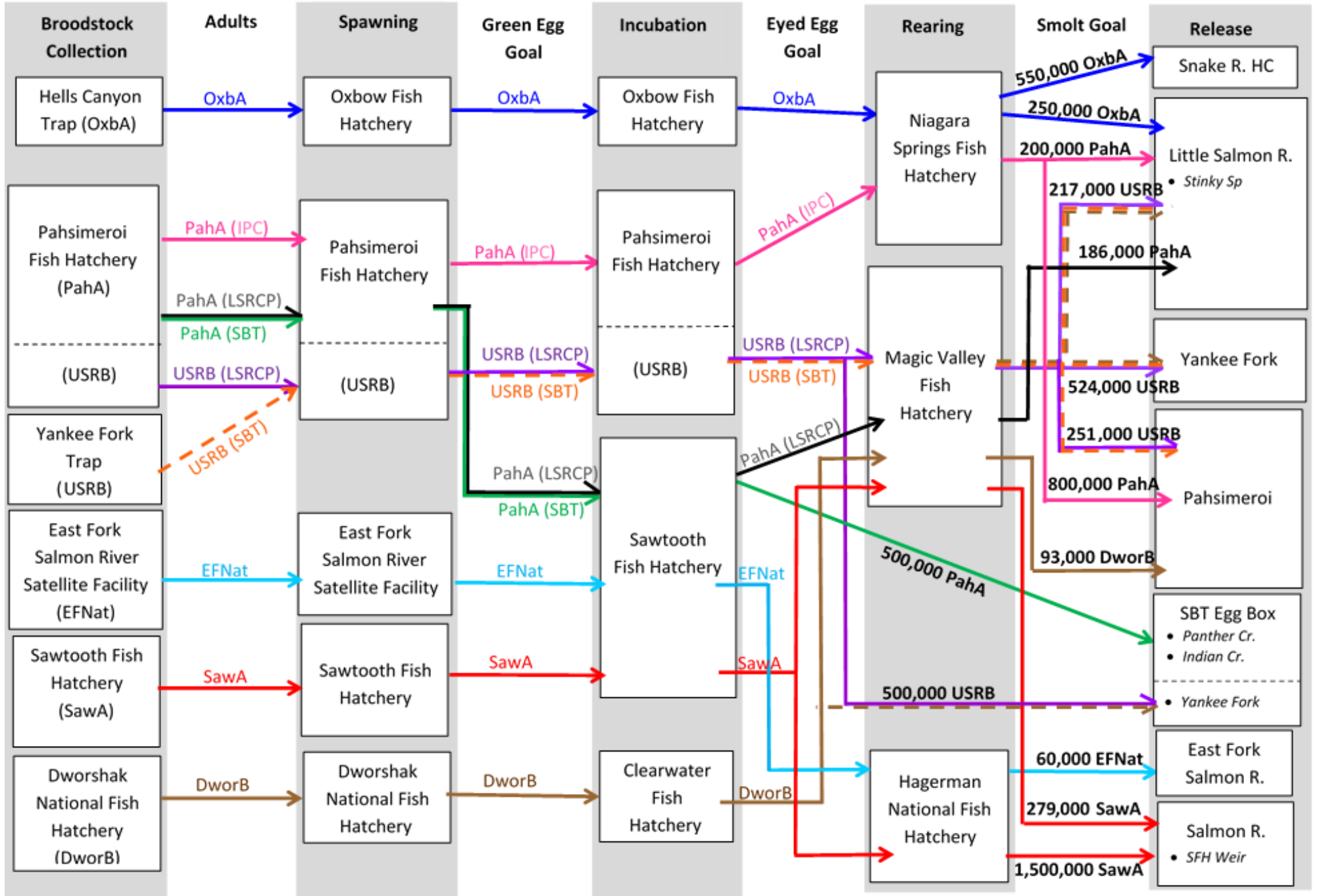


Figure 1.3. Fish and egg movements for Steelhead. Numbers reflect 2020 releases.

1.2. Releases in 2020 (Smolt BY 2019, Egg Box BY 2020)

1.2.1. Releases in 2020 (Smolt BY 2019, Egg Box BY 2020) – Totals

Table 1.2a. Steelhead Rearing Metrics for BY 2019 fish

Hatchery	Release Site	Stock	Eggs/Fry Shipped/Received	Inventory To Date		Release Goals		Excess Fry/ Fingerlings Released		Projected Smolt Releases		
				Date	Number	Number	Size (FPP)	Number	Release Site (Date)	Dates	Number	Size (FPP)
HNFH	Sawtooth Weir ²	SawA	1,602,000	1/21/2020	1,394,449	1,410,000	4.5			4/1/19	1,391,000	4.5
HNFH	Sawtooth Weir (PRAS Eval)	SawA	102,144	1/21/2020	94,503	90,000	4.5			4/1/19	94,000	4.5
HNFH	E. Fork Salmon R. - Upper	EFNat	66,028	1/21/2020	59,629	60,000	4.5			4/15/19	59,000	4.5
Totals			1,770,172		1,548,581	1,560,000		-			1,544,000	
MVFH	Little Salmon R. - Stinky Sp.	PahA	492,904	1/17/2020	357,047	186,000	4.5	70,160	Salmon Falls Cr Res, Oakley (9/24-9/25)	4/10-4/15	351,000	4.5
MVFH	Pahsimeroi Weir ¹	USRB	284,962	1/17/2020	252,691	251,000	4.5			4/6-4/9	248,900	4.5
MVFH	Pahsimeroi Weir	DworB	105,042	1/17/2020	93,900	93,000	4.5			4/6-4/7	92,492	4.5
MVFH	Sawtooth Weir	SawA	327,654	1/17/2020	287,306	279,000	4.5	25,980	Salmon Falls Cr Res (9/24)	4/16-4/20	282,996	4.5
MVFH	Yankee Fork ¹	USRB/DworB	630,253	1/17/2020	534,671	524,000	4.5			4/21-4/28	526,650	4.5
MVFH	Little Salmon - Stinky Sp.	USRB/DworB	66,442	1/17/2020	55,870	217,000	4.5			4/6-4/10	55,000	4.5
Totals			1,907,257		1,581,485	1,550,000		96,140			1,557,038	
NSFH	Pahsimeroi Weir	PahA	938,977	1/23/2020	792,431	800,000	4.5			3/30-4/10	789,000	4.5
NSFH	Little Salmon R. - Stinky Sp.	PahA	257,430	1/23/2020	205,768	200,000	4.5			4/10-4/16	205,000	4.5
NSFH	Little Salmon R. - Stinky Sp.	OxbA	309,702	1/23/2020	256,505	250,000	4.5	19,600	Salmon Falls Cr Res (9/24)	4/16-4/21	255,000	4.5
NSFH	Snake R. Hells Canyon	OxbA	605,273	1/23/2020	557,315	550,000	4.5			3/16-3/27	555,000	4.5
Totals			2,111,382		1,812,019	1,800,000		19,600			1,804,000	
Grand Total			5,788,811		4,942,085	4,910,000		115,740			4,905,038	

¹ Release goals for the USRB stock were changed in June of 2019 to shift 96,000 unclipped smolts from the Yankee Fork release group to the Pahsimeroi release group in an effort to increase future adult returns to the weir.

² Totals include two 90k groups for PRAS evaluation

Table 1.2b. BY 2019 Steelhead Inventory to Date by Mark Type in 2020

Hatchery	Release Site	Stock	Inventory to Date						PIT Tags						
			Date	Total	Adipose Fin Clip		No Clip		Total # Tags ¹	Funding Source ²					
					No CWT	CWT	CWT	No CWT		CSS	LSRCP	IPC	USFWS		
HNFH	Sawtooth Weir ³	SawA	1/21/2020	1,394,449	1,218,288	176,161			8,594	2,600	6,000				
HNFH	Sawtooth Weir (PRAS Eval)	SawA	1/21/2020	94,503		94,503			21,398		21,300				
HNFH	E. Fork Salmon R. - Upper	EFNat	1/21/2020	59,629			59,629		8,599	2,600	6,000				
Totals					1,548,581	1,218,288	270,664	59,629	-	38,591	5,200	33,300	-	-	
MVFH	Little Salmon R. - Stinky Sp.	PahA	1/17/2020	357,047	357,047	-	-	-	2,194	2,200					
MVFH	Pahsimeroi Weir ⁴	USRB	1/17/2020	252,691	-	0	252,691	-	6,994	2,100	5,100				
MVFH	Pahsimeroi Weir	DworB	1/17/2020	93,900	-	0	93,900	-	4,191	1,300	2,900				
MVFH	Sawtooth Weir	SawA	1/17/2020	287,306	287,306	-	-	-	5,699	5,700					
MVFH	Yankee Fork ⁴	USRB/DworB	1/17/2020	534,671	409,683	-	124,988	-	13,292	5,300	8,000				
MVFH	Little Salmon - Stinky Sp.	USRB/DworB	1/17/2020	55,870	55,870	-	-	-	2,398	2,200					
Totals					1,581,485	1,109,906	-	471,579	-	34,768	18,800	16,000	-	-	
NSFH	Pahsimeroi Weir	PahA	1/23/2020	792,431	792,431				8,997	3,000		6,000			
NSFH	Little Salmon R. - Stinky Sp.	PahA	1/23/2020	205,768	205,768				2,299	1,800		500			
NSFH	Little Salmon R. - Stinky Sp.	OxbA	1/23/2020	256,505	256,505				2,797	2,300		500			
NSFH	Snake R. Hells Canyon	OxbA	1/23/2020	557,315	557,315				8,591	2,600		6,000			
Totals					1,812,019	1,812,019	-	-	-	22,684	9,700	-	13,000	-	-
Grand Total					4,942,085	4,140,213	270,664	531,208	-	96,043	33,700	49,300	13,000	-	-

¹ Represents actual number tagged if tags have already been applied at the time of this report

² Represents number of tags paid for by each agency. Sum total may not equal "Total # Tags" for locations where tagging has already occurred

³ Totals include two 90k groups for PRAS evaluation

⁴ Release goals for the USRB stock were changed in June of 2019 to shift 96,000 unclipped smolts from the Yankee Fork release group to the Pahsimeroi release group in an effort to increase future adult returns to the weir.

See **Table 1.1** for BY 2020 Steelhead Egg box transfers in 2020

1.2.2. Releases in 2020 (Smolt BY 2019, Egg Box BY 2020) - Narrative

Here are examples of things managers talk about for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Smolt/Egg Release Targets- e.g. Were you below goal? Was you size at release different than SOP target? Did you depart from the mark plan?
- Fish/Egg Health- any epizootic history, anti-biotic treatments, was production culled at any point
- Transportation/Releases- e.g. timing, trucking issues, site access etc.

Release Location	Plan for 2020		Changes/Conditions that Occurred 2019-Early 2020		
	Release Target Smolt BY19, Egg BY20	Transport/Release Smolt BY19, Egg BY20	Fish Feeding BY19	Fish/Egg Health BY19	Marking BY19
<i>Niagara Springs Fish Hatchery (SOP Section 1.2)</i>					
Pahsimeroi Weir (PahA)	NC	NC	NC	NC	Surplus LSR PahA marked into PahA raceways for shortage
L. Salmon R. Stinky Springs (PahA/OxbA)	NC	NC	NC	Chloramine T treatment; BGD	NC
Snake R. Hells Canyon (OxbA)	NC	NC	NC	Aquaflor treatments; CW	NC
<i>Pahsimeroi Fish Hatchery - Egg transfers to SBT - BY 2020 (SOP Sections 1.4 and 1.10)</i>					
Yankee Fork (USRB)	NC	NC			
<i>Sawtooth Fish Hatchery - Egg transfers to SBT - BY 2020 (SOP Sections 1.4, 1.7 and 1.10)</i>					
Indian Creek (PahA)	NC	NC			
Panther Creek (PahA)	NC	NC			
<i>Hagerman National Fish Hatchery (SOP Section 1.5)</i>					
East Fork Weir (EFnat)	NC	NC	NC	NC	NC
Sawtooth Weir (SawA)	NC	NC	NC	Fed Aquaflor to treat Coldwater	NC

Release Location	Plan for 2020		Changes/Conditions that Occurred 2019-Early 2020		
	Release Target Smolt BY19, Egg BY20	Transport/Release Smolt BY19, Egg BY20	Fish Feeding BY19	Fish/Egg Health BY19	Marking BY19
<i>Magic Valley Fish Hatchery (SOP Section 1.6)</i>					
Sawtooth Weir (SawA)	NC	NC	NC	NC	NC
L. Salmon R. Stinky Springs (PahA)	NC	NC	NC	NC	NC
Pahsimeroi Weir (USRB)	Moved 96,000 Ad-intact USRB smolts from Yankee Fork to Pahsimeroi Weir to increase broodstock returns. This shift increases smolt releases from 155,000 to 251,000.	NC	NC	NC	There were 200 PIT tags that inadvertently got shifted to the Little Salmon USRB group.
Pahsimeroi Weir (DworB)	NC	NC	NC	Fed Aquaflor to treat coldwater	NC
Yankee Fork (USRB/DworB)	Moved 96,000 Ad-intact USRB smolts from Yankee Fork to Pahsimeroi Weir for broodstock management.	NC	NC	Fed Terramycin to treat coldwater	NC
L. Salmon R. Stinky Springs (USRB/DworB)	NC	NC	NC	NC	There were 200 PIT tags that inadvertently got shifted from the Pahsimeroi Weir group.

1.3. Trap Operations and Production Planning for 2020 (Smolt BY 2020, Egg Box BY 2020)

1.3.1. Trap Operations and Production Planning for 2020 (Smolt BY 2020, Egg Box BY 2020) – TOTALS

Table 1.3a. Steelhead Projected BY 2020 Smolt Production Goals for Release in 2021

Hatchery	Release Site	Stock	Smolt Release Goals
HNFH	Sawtooth Weir	SawA	1,410,000
	Sawtooth Weir (RAS Eval)	SawA	90,000
	E. Fork Salmon R. - Upper	EFNat	60,000
Total			1,560,000
MVFH	Sawtooth Weir	SawA	279,000
	Little Salmon R. - Stinky Sp.	PahA	186,000
	Pahsimeroi Weir	USRB	251,000
	Pahsimeroi Weir	DworB	93,000
	Yankee Fork	USRB (DworB)	524,000
	Little Salmon - Stinky Sp.	USRB	217,000
Total			1,550,000
NSFH	Pahsimeroi Weir	PahA	800,000
	Little Salmon R. - Stinky Sp.	PahA	200,000
	Little Salmon R. - Stinky Sp.	OxbA	250,000
	Snake R. Hells Canyon	OxbA	550,000
Total			1,800,000
Grand Total			4,910,000

Table 1.3b. Steelhead Spawning for BY 2020 - Based on Brood Calculator

Green Egg Goal					Spawning Goal					Broodstock Trapping Goals								
Spawning Facility	Brood Source	Rearing Hatchery	Release Site	Green Egg Goal	Brood Source	Rearing Hatchery	Fecundity	Spawn Goal		Brood Source	Rearing Hatchery	Projected Return to LGD ⁶	Trapping period		Trapping Goal ¹			
								Females	Males ⁵				Total	Season	Dates	Female	Male	Total
SFH	SawA	HNFH	Sawtooth Weir	1,715,855	SawA	HNFH	5,150	334	334	SawA	HNFH	2,831	sp	3/30-4/30/20	334	334	668	
			Sawtooth Weir (RAS Eval)	109,523			5,150	22	22				sp	3/30-4/30/20	22	22	44	
		MVFN	Sawtooth Weir	361,635		MVFN	5,100	71	71		MVFN		sp	3/30-4/30/20	71	71	142	
EFSR Sat.	EFNat	HNFH	E. Fork Salmon R. - Upper	83,417	EFNat	HNFH	5,900	15	15	EFNat	HNFH	124	sp	4/15-5/18/20	15	15	30	
PFH	PahA	MVFN	Little Salmon R. - Stinky Sp.	261,905	PahA	MVFN	5,500	48	48	PahA	MVFN	2,329	sp	2/18 - 5/1/2020	48	48	96	
			Pahsimeroi Weir	1,051,374			NSFN	5,500	192				192		NSFN	sp	192	192
		NSFN	Little Salmon R. - Stinky Sp.	262,843		NSFN	5,500	48	48		SFN		sp		48	48	96	
		SFN	SBT Egg Box-Panther Creek	479,826		SFN	5,500	88	88		SFN		sp		88	88	176	
			SBT Egg Box-Indian Creek	119,956			5,500	22	22				sp		22	22	44	
	USRB (DworB) ³	MVFN	Pahsimeroi Weir	Yankee Fork	693,122	USRB (DworB)	MVFN	6,200	54	36	USRB (DworB)	MVFN	314			57	38	95
				Little Salmon - Stinky Sp.	292,778			6,200	112	75						118	79	197
				SBT Egg Box-Yankee Fork	611,111			6,200	48	32						51	34	85
				PFH/CFH ²				6,200	99	99						104	104	209
OFH	OxB	NSFN	Little Salmon R. - Stinky Sp.	388,151	OxB	NSFN	5,500	71	71	OxB	NSFN	1,995	fall	11/4-11/27	303	303	606	
			Snake R. Hells Canyon	853,931			5,500	156	156				sp	4/7-4/8				
DNFH	DworB	MVFN	Pahsimeroi Weir	144,983	DworB ⁴	MVFN	6,681	22	11	DworB	NSFN			22	11	33		

¹ Broodstock trapping need is dictated by number of females needed

² If smolt releases for Yankee Fork and Pahsimeroi are met and egg box needs cannot be met with USRB eggs, then DworB eggs will be considered for the SBT egg box program if available

³ Sequence of priority for USRB eggs: Pahsimeroi Weir, Yankee Fork Salmon River, Yankee Fork Egg Box Program, Little Salmon River releases. DWOR eggs will be used to backfill program needs.

⁴ The minimum number of DWOR females to spawn for the USAL-B program is 22, but returns of USAL-B adults to Pahsimeroi Weir may require additional eggs from DWOR.

⁵ this is actually the # of Males collected while getting the # of Females needed, based on % of F in Brodstock

⁶ Projected Return to LGD includes only BY14 and BY15 for USRB/DWOR.

Table 1.3c. BY2020 Steelhead adult female broodstock acquisition schedules for hatchery programs.

Season	Date	Hells Canyon Trap		Pahsimeroi Fish Hatchery				Sawtooth Fish Hatchery		East Fork Salmon River Satellite		Dworshak National Fish Hatchery	
		OxbA ¹		PahA		USRB		SawA		EFNat		DworB ²	
		Wkly	Cum	Wkly	Cum	Wkly	Cum	Wkly	Cum	Wkly	Cum	Wkly	Cum
Fall 2019	Oct	0	0	0	0	0	0	0	0	0	0	0	0
	Nov	303	303	0	0	0	0	0	0	0	0	0	0
	Dec	0	303	0	0	0	0	0	0	0	0	0	0
Spring 2020	16-Feb	0	303	0	0	0	0	0	0	0	0	0	0
	23-Feb	0	303	0	0	0	0	0	0	0	0	0	0
	1-Mar	0	303	0	0	0	0	0	0	0	0	0	0
	8-Mar	0	303	0	0	0	0	0	0	0	0	0	0
	15-Mar	0	303	0	0	0	0	0	0	0	0	0	0
	22-Mar	0	303	0	0	0	0	0	0	0	0	22	22
	29-Mar	0	303	89	89	26	26	33	33	0	0	0	22
	5-Apr	76	378	40	129	78	104	140	173	0	0	0	22
	12-Apr	0	378	77	206	130	233	127	300	0	0	0	22
	19-Apr	0	378	77	283	78	311	56	356	3	3	0	22
	26-Apr	0	378	76	359	19	329	71	427	7	10	0	22
	3-May	0	378	39	398	0	329	0	427	5	15	0	22
	10-May												
17-May													

	Proportion of brood acquisition over season					
	OxbA	PahA	USRB	SawA	EFNat	DworB
Oct	0	0	0	0	0	0
Nov	1	0	0	0	0	0
Dec	0	0	0	0	0	0
16-Feb	0	0	0	0	0	0
23-Feb	0	0	0	0	0	0
1-Mar	0	0	0	0	0	0
8-Mar	0	0	0	0	0	0
15-Mar	0	0	0	0	0	0
22-Mar	0	0	0	0	0	1
29-Mar	0	0.2227	0.0786	0.0766	0	0
5-Apr	0.25	0.1002	0.2358	0.3288	0	0
12-Apr	0	0.1938	0.3931	0.2973	0	0
19-Apr	0	0.1938	0.2358	0.1306	0.2308	0
26-Apr	0	0.1915	0.0566	0.1667	0.4615	0
3-May	0	0.098	0	0	0.3077	0

	OxbA	PahA	USRB	SawA	EFNat	DworB
Total Females to Trap (from Brood Calculator)	303	398	329	427	15	22

¹ The sum of OxbA adult female broodstock acquisition values exceeds the Total Females to Trap in the Brood Calculator to account for additional fish trapped during the spring trapping season.

² The minimum number of DWOR females to spawn for the USAL-B program is 22, but anticipated returns of USAL-B females to Pahsimeroi Weir in 2020 may require up to 233 DWOR females spawned.

Table 1.3d. Steelhead Spawning for BY 2021 - Based on Brood Calculator

Green Egg Goal					Spawning Goal					Broodstock Trapping Goals							
Spawning Facility	Brood Source	Rearing Hatchery	Release Site	Green Egg Goal	Brood Source	Rearing Hatchery	Fecundity	Spawn Goal		Brood Source	Rearing Hatchery	Projected Return to LGD	Trapping period		Trapping Goal ¹		
								Females	Males ²				Total	Season	Dates	Female	Male
OFH	OxbA	NSFH	Little Salmon R. - Stinky Sp.	388,151	OxbA	NSFH	5,500	71	71	OxbA	NSFH		fall	11/4-27, 2019	303	303	606
			Snake R. Hells Canyon	853,931			5,500	156	156				spring	4/7-8, 2020			

¹ Broodstock trapping need is dictated by number of females needed

² This is acutally the # of Males collected while getting the # of Females needed, based on % of F in Brodstock

Table 1.3e. BY2021 Steelhead adult female broodstock acquisition schedule for hatchery programs.

Season	Date	Hells		Proportion of brood acquisition over season
		OxbA ¹		
		Wkly	Cum	
Fall 2020	Oct	0	0	Oct
	Nov	303	303	Nov
	Dec	0	303	Dec

	OxbA
Total Females to Trap (from Brood Calculator)	303

¹ The sum of OxbA adult female broodstock acquisition values exceeds the Total Females to Trap in the Brood Calculator to account for additional fish trapped during the spring trapping season.

1.3.2. Trap Operations and Production Planning for 2020 (Smolt BY 2020, Egg Box BY 2020) – NARRATIVE

Here are examples of things managers were instructed to discuss for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

Rearing Location	Plan for 2020 (BY 2020)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
<i>Hells Canyon Trap/Oxbow Hatchery (Fall 2019-Spring 2020) (SOP Section 1.3)</i>					
Niagara Springs (OxbA)	NC	NC	NC	Contingency plan in place if chiller doesn't work	NC
<i>Pahsimeroi Weir (SOP Section 1.4)</i>					
Niagara Springs (PahA)	NC	NC	NC	May need to adjust fecundities and lot sizes to reflect higher female fecundities over the last five brood years.	NC
Magic Valley (PahA)	NC	NC	NC	May need to adjust fecundities and lot sizes to reflect higher female fecundities over the last five brood years.	NC
SBT Egg Box (PahA)	NC	NC	NC	May need to adjust fecundities and lot sizes to reflect higher female fecundities over the last five brood years.	NC
SBT Egg Box (USRB)	NC	NC	NC	NC	NC
Magic Valley (USRB)	NC	NC	NC	NC	NC

Rearing Location	Plan for 2020 (BY 2020)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
<i>Sawtooth and East Fork Weirs (SOP Sections 1.7 and 1.8)</i>					
Hagerman National (EFNat)	NC	NC	NC	NC	NC
Hagerman National (SawA)	NC	Continue collecting all CWT from returning adults for PRAS evaluation.	NC	NC	NC
Magic Valley (Saw)	NC	Continue collecting all CWT from returning adults for PRAS evaluation.	NC	NC	NC
<i>Dworshak National Fish Hatchery Ladder (Fall 2019-Spring 2020) (SOP Section 1.9)</i>					
Magic Valley (DworB)					

1.4. Marking and Rearing Plan for 2020 (Smolt BY 2020)

1.4.1. Marking and Rearing Plan for 2020 (Smolt BY 2020) – TOTALS

Table 1.4a. Steelhead Projected marking of BY 2020 Production for release in 2021

Hatchery	Release Site	Stock	Smolt Release Goals	Projected Marking				PIT Tags			
				Adipose Fin Clip		No Clip		Total # Tags	Funding Source		
				No CWT	CWT	CWT	No CWT		CSS	LSRCP	IPC
HNFH	Sawtooth Weir	SawA	1,410,000	1,410,000				8,700	2,600	6,100	
	Sawtooth Weir (RAS Eval)	SawA	90,000	90,000				3,000		3,000	
	E. Fork Salmon R. - Upper	EFNat	60,000			60,000		8,600	2,600	6,000	
Totals			1,560,000	1,500,000	-	60,000	-	20,300	5,200	15,100	-
MVFH	Sawtooth Weir	SawA	279,000	279,000				5,700	5,700		
	Little Salmon R. - Stinky Sp.	PahA	186,000	186,000				2,200	2,200		
	Pahsimeroi Weir	USRB	251,000			251,000		7,200	2,100	5,100	
	Pahsimeroi Weir	DworB	93,000			93,000		4,200	1,300	2,900	
	Yankee Fork	USRB (DworB)	524,000	403,000		121,000		13,300	5,300	8,000	
Little Salmon - Stinky Sp.	USRB	217,000	217,000				2,200	2,200			
Totals			1,550,000	1,085,000	-	465,000	-	34,800	18,800	16,000	-
NSFH	Pahsimeroi Weir	PahA	800,000	800,000				9,000	3,000		6,000
	Little Salmon R. - Stinky Sp.	PahA	200,000	200,000				2,300	1,800		500
	Little Salmon R. - Stinky Sp.	OxbA	250,000	250,000				2,800	2,300		500
	Snake R. Hells Canyon	OxbA	550,000	550,000				8,600	2,600		6,000
Totals			1,800,000	1,800,000	-	-	-	22,700	9,700	-	13,000
Grand Totals			4,910,000	4,385,000	-	525,000	-	77,800	33,700	31,100	13,000

1.4.2. Marking and Rearing Plan for 2020 (Smolt BY 2020) – NARRATIVE

Here are examples of things managers were instructed to discuss for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Fish Health - anticipated changes to normal fish health sampling or treatments
- Fish feeding - changes of diets of feed manufacturer, growth regimes etc.
- Rearing conditions - incubation, water temp, flow, rearing density changes
- Marking - e.g. changes to schedules, fish handling or movement, raceway loading for PBT, %PBT etc.

Release Location	Plan for 2020 (BY 2020)			
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking
<i>Niagara Springs Fish Hatchery (SOP Section 1.2)</i>				
L. Salmon R. Stinky Springs (OxbA)	NC	NC	New predator control structure completion 10/20	NC
Snake R. Hells Canyon (OxbA)	NC	NC	New predator control structure completion 10/20	NC
L. Salmon R. Stinky Springs (PahA)	NC	NC	New predator control structure completion 10/20	NC
Pahsimeroi Weir (PahA)	NC	NC	New predator control structure completion 10/20	NC
<i>Hagerman National Fish Hatchery (SOP Section 1.5)</i>				
East Fork Weir (EFnat)	NC	NC	NC	NC
Sawtooth Weir (SawA)	NC	NC	No PRAS comparison fish for BY20	No PRAS comparison fish for BY20. No CWT
<i>Magic Valley Fish Hatchery (SOP Section 1.6)</i>				
Sawtooth Weir (SawA)	NC	NC	NC	NC
L. Salmon R. Stinky Springs (PahA)	NC	NC	NC	NC
Pahsimeroi Weir (USRB)	NC	NC	NC	NC

Release Location	Plan for 2020 (BY 2020)			
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking
Pahsimeroi Weir (DworB)	NC	NC	NC	NC
Yankee Fork Salmon R., Lower (USRB/DworB)	NC	NC	NC	NC
L. Salmon R. Stinky Springs (USRB)	NC	NC	NC	NC

2. Spring/Summer Chinook

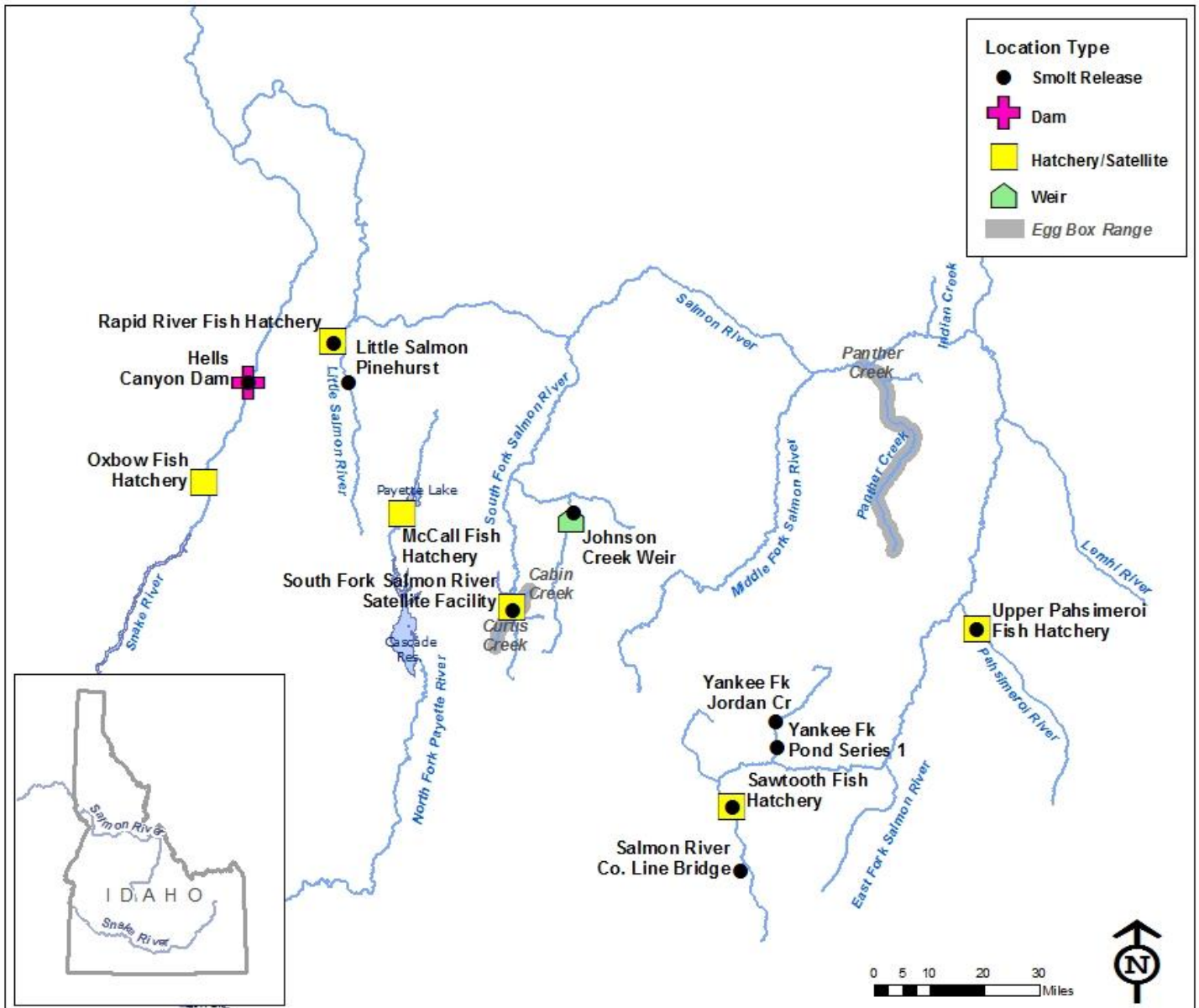


Figure 2.1. Spring/Summer Chinook salmon hatchery facilities and smolt release and egg box locations.

Table 2.1. Sp/Su Chinook Release Goals.

Smolts				
Release Program	Release Site	Rearing Facility	Stock	BY2018 Smolt Release Goal
IPC / IDFG	Rapid River Hatchery	RRFH	RapidR	2,500,000
	Little Salmon (@ Pinehurst)		RapidR	150,000
	Hells Canyon		RapidR	350,000
Total				3,000,000
LSRCP / IDFG	Salmon R. - Co. Line Br. - Integrated	SFH	USRInt	250,000
	Sawtooth Weir - Segregated		USRSeg	1,450,000
	Yankee Fork		USRSeg	300,000
Total				2,000,000
IPC / IDFG	Pahsimeroi Weir - Integrated	PFH	PahInt	65,000
	Pahsimeroi Weir - Segregated		PahSeg	935,000
Total				1,000,000
LSRCP / IDFG	SFSR Knox Br. - Integrated	McFH	SFSRInt	150,000
	SFSR Knox Br. - Segregated		SFSRSeg	850,000
NPT	Johnson Creek		Johnson Cr.	150,000
Total				1,150,000
Grand Total				7,150,000

Eggs						
Program	Release Location	Hatchery Egg Source	Stock	Green Egg Target	Eyed Egg BY2020 Goal	Smolt BY2020 Release Goal
Egg Box Release						
SBT Eggbox	Curtis/Cabin Creek	McFH	SFSRSeg	344,372	300,000	NA
SBT Eggbox ¹	Panther Creek	PFH	PahSeg	918,326	800,000	NA
Egg Transfer						
Clearwater Su Chinook ¹	Powell Ponds	McFH/CFH	SFSRSeg	770,891	666,667	640,000

¹ Brood for these eggs are not included in stated brood goals and will come from fish trapped in excess of brood needs for onsite smolt and egg box programs. Prioritization of excess fish between recycling to fisheries, Tribal C&S, foodbank, outplants and the Clearwater Hatchery Summer Run Program will occur in-season between State and Tribal managers.

2.1. Timeline and Flowchart for Spring/Summer Chinook Production

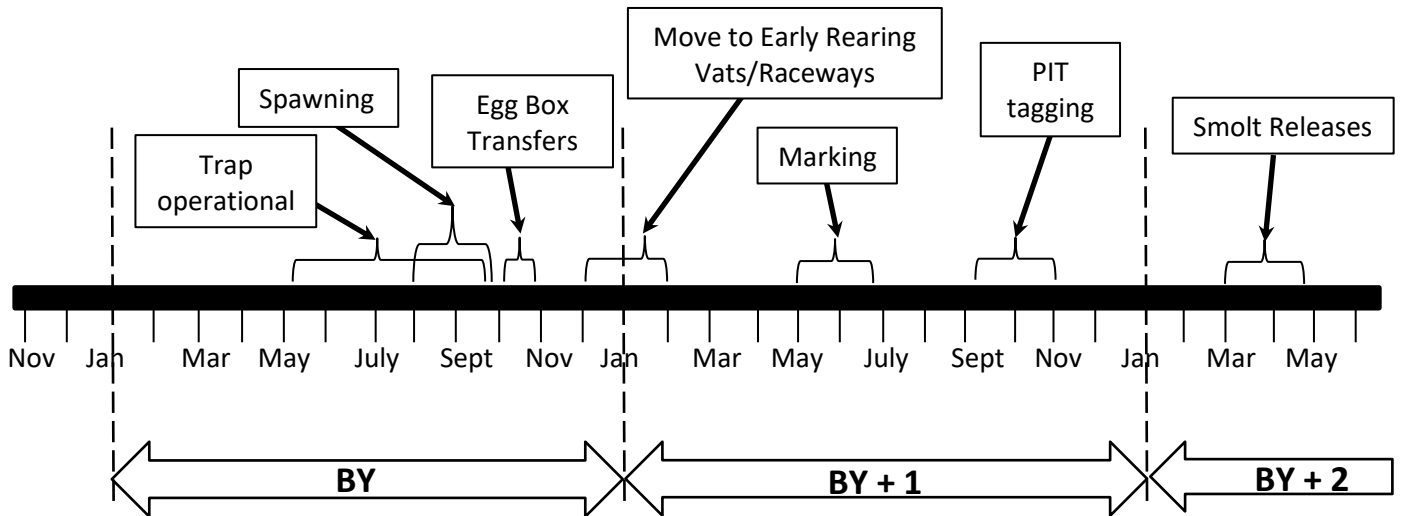


Figure 2.2. Timeline for Spring/Summer Chinook Production. Date ranges are shown to include all facilities' operations.

CHINOOK

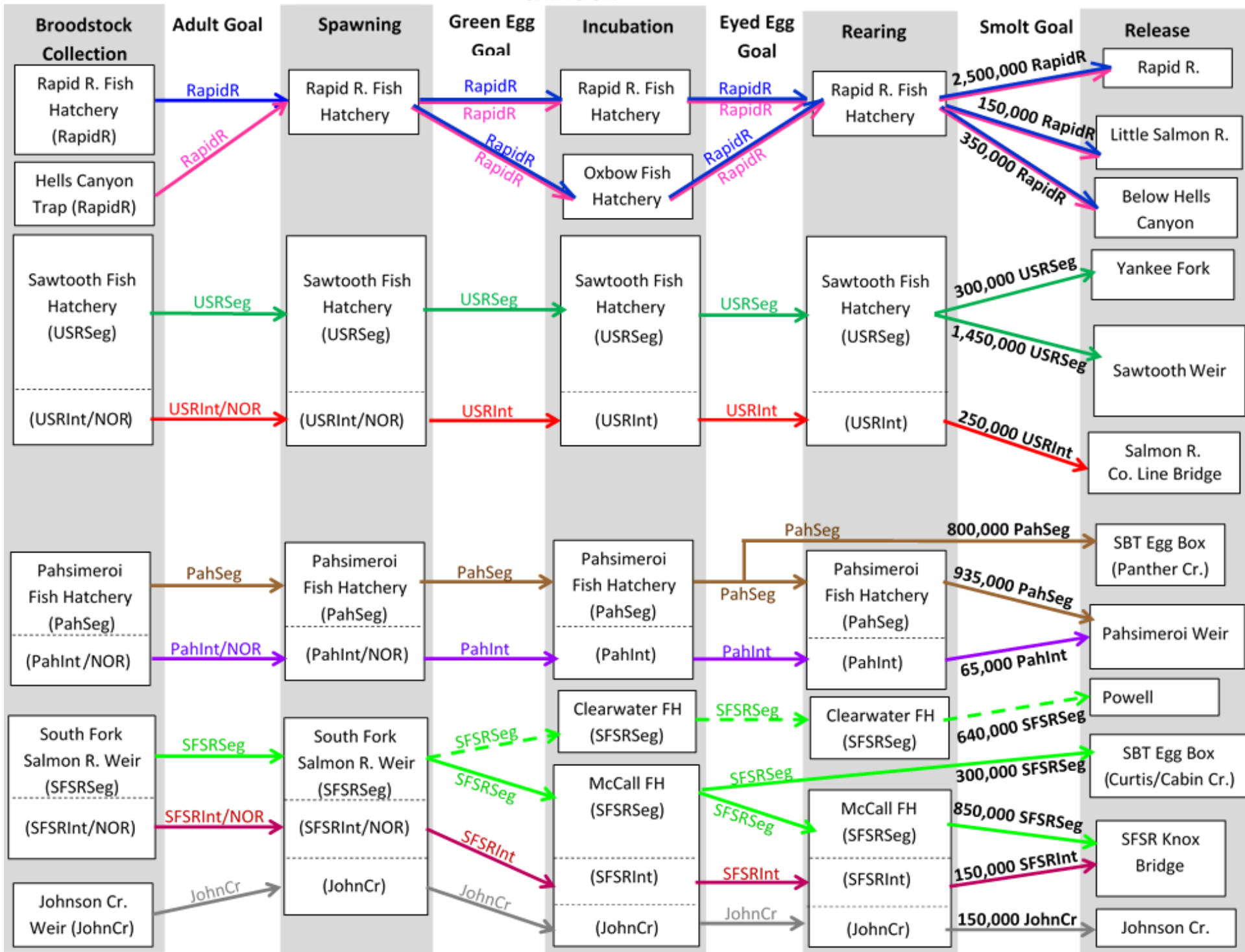


Figure 2.3. Fish and Egg movements for Sp and Su Chinook. Numbers reflect 2020 releases.

2.2. Releases in 2020 (Smolt BY 2018, Egg Box BY 2020)

2.2.1. Releases in 2020 (Smolt BY 2018, Egg Box BY 2020) – Totals

Table 2.2a. BY2018 SMOLTS - Sp/Su Chinook Salmon inventories by life stage, smolts release goals and projected releases in 2020.

Hatchery	Release Site	Stock	Eyed Eggs to Rear ¹	Inventory To Date		Release Goals		Projected Smolt Release		
				Date	Number	Number	Size (FPP)	Dates	Number	Size (FPP)
RRFH ²	Rapid River Hatchery	RapidR	2,614,439	2/24/2020	2,567,000	2,500,000	20.0	3/16-4/24/2020	2,567,000	20.0
	Little Salmon (@ Pinehurst)	RapidR				150,000	20.0		0	
	Hells Canyon	RapidR				350,000	20.0		0	
Total			2,614,439		2,567,000	3,000,000			2,567,000	
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt		1/31/2020	102,396	250,000	20.0	4/7/20	102,253	20.0
	Sawtooth Weir - Segregated	USRSeg		1/31/2020	1,172,688	1,450,000	20.0	4/7-4/8/20	1,171,203	20.0
	Yankee Fork	USRSeg		1/31/2020	327,834	300,000	20.0	4/23-4/26/20	327,401	20.0
Total			-		1,602,918	2,000,000			1,600,857	
PFH	Pahsimeroi Weir - Integrated	PahInt	85,325	12/31/2020	66,940	65,000	15.0	4/13/20-4/22/20	66,000	15.0
	Pahsimeroi Weir - Segregated	PahSeg	1,145,328	12/31/2020	1,017,725	935,000	15.0	4/13/20-4/22/20	1,014,000	15.0
Total			1,230,653		1,084,665	1,000,000			1,080,000	
McfH	SFSR Knox Br. - Integrated	SFSRInt	140,798	1/31/2020	129,844	150,000	20.0	4/01-4/05/2020	129,704	20.0
	SFSR Knox Br. - Segregated	SFSRSeg	967,852	1/31/2020	919,959	850,000	20.0	4/01-4/05/2020	918,967	20.0
	Johnson Creek	Johnson Cr.	139,076	1/31/2020	120,680	150,000	20.0	3/30-3/31/2020	120,557	20.0
Total			1,247,726		1,170,483	1,150,000			1,169,228	
Grand Total			5,092,818		6,425,066	7,150,000			6,417,085	

¹ Eyed Eggs to Rear = (Total Green Eggs) - (Eggs culled for disease) - (Dead eggs picked) - (Eggs culled for hatchery capacity) - (Eggs transferred out)

² Rapid River eyed eggs and inventory are not partitioned by release site prior to release

Table 2.2b. BY2018 SMOLTS for release in 2020 - Sp/Su Chinook Salmon Inventory to Date by Mark Type in 2020

Hatchery	Release Site	Stock	Inventory to Date						PIT Tags					
			Date	Total	Adipose Fin Clip		No Clip		Total # Tags	Funding Source				
					No CWT	CWT	CWT	No CWT		CSS	LSRCP	IPC	BPA	OTHER
RRFH	Rapid River Hatchery	RapidR	2/24/2020	2,567,000	2,446,113	120,887	-	-	51,996	31,996	0	20,000	0	0
	Little Salmon (@ Pinehurst)	RapidR							-	0	0	0	0	0
	Hells Canyon	RapidR							-	0	0	0	0	0
Totals				2,567,000	2,446,113	120,887	-	-	51,996	31,996	-	20,000	-	-
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	1/31/2020	102,396	-	-	102,396	-	1,001	-	1,001	-	-	-
	Sawtooth Weir - Segregated	USRSeg	1/31/2020	1,172,688	1,052,042	120,646	-	-	18,900	5,700	13,200	0	0	0
	Yankee Fork	USRSeg	1/31/2020	327,834	208,864	118,970	-	-	2,500	700	1,800	0	0	0
Totals				1,602,918	1,260,906	239,616	102,396	-	22,401	6,400	16,001	-	-	-
Pah	Pahsimeroi Weir - Integrated	PahInt	12/31/2019	66,940	-	-	66,940	-	-	-	-	-	-	-
	Pahsimeroi Weir - Segregated	PahSeg	12/31/2019	1,017,725	897,752	119,973	-	-	21,400	6,400	0	15,000	0	0
Totals				1,084,665	897,752	119,973	66,940	-	21,400	6,400	-	15,000	-	-
McFH	SFSR Knox Br. - Integrated	SFSRInt	1/31/2020	129,844	-	-	129,844	-	25,989	25,989	0	0	0	0
	SFSR Knox Br. - Segregated	SFSRSeg	1/31/2020	919,959	799,784	120,175	-	-	25,986	5,986	20,000	0	0	0
	Johnson Creek	Johnson Cr.	1/31/2020	120,680	-	-	120,680	-	2,000	-	-	-	2,000	-
Totals				1,170,483	799,784	120,175	250,524	-	53,975	31,975	20,000	-	2,000	-
Grand Total				6,425,066	5,404,555	600,651	419,860	-	149,772	76,771	36,001	35,000	2,000	-

See **Table 2.1** for BY 2020 Sp/Su Chinook salmon egg transfers to streamside egg boxes in 2020.

2.2.2. Releases in 2020 (Smolt BY 2018, Egg Box BY 2020) – Total

Discuss for each release group if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Smolt/Egg Release Targets- e.g. were you below goal, was your size at release different than SOP target etc.
- Fish/Egg Health- any epizootic history, anti-biotic treatments, was production culled at any point
- Transportation/Releases- e.g. timing, trucking issues, site access etc.

Location	Plan for 2020		Changes/Conditions that Occurred 2019-Early 2020		
	Release Target Smolt BY18, Egg BY20	Transport/Release Smolt BY18, Egg BY20	Fish Feeding BY18	Fish/Egg Health BY18	Marking BY18
<i>Rapid River Fish Hatchery (SOP Section 2.2)</i>					
Rapid River Hatchery (RapidR)	NC	Additional 67,000	NC	Temporary post-marking mortality spike in pond fish were PIT tagged from (RP-2A only). Probably stress induced. Will alter fish netting operation in 2020 for BY19	NC
Little Salmon R. (RapidR)	NC	No release	NC	NC	NC
Hells Canyon (RapidR)	NC	No release	NC	NC	NC
<i>McCall Fish Hatchery (SOP Sections 2.3, 2.4 and 2.9)</i>					
SFSR Knox Bridge (SFSRInt)	Projected release of 129,704 is 86% of the release goal.	NC	NC	NC	NC
SFSR Knox Bridge (SFSRSeg)	NC	NC	NC	NC	NC
Johnson Cr. (JohnCr)	NC	NC	NC	NC	NC
Curtis/Cabin Cr. Egg Box (SFSRSeg)	NC	NC			
<i>Pahsimeroi Fish Hatchery (SOP Section 2.5)</i>					
Pahsimeroi Weir Integrated (PahInt)	NC	NC	NC	BKD confirmed in Pond 1. One medicated feed treatment was administered during the production cycle. Would like to treat again prior to release.	There are no longer 1000 PITs with this group.

Location	Plan for 2020		Changes/Conditions that Occurred 2019-Early 2020		
	Release Target Smolt BY18, Egg BY20	Transport/Release Smolt BY18, Egg BY20	Fish Feeding BY18	Fish/Egg Health BY18	Marking BY18
Pahsimeroi Weir Segregated (PahSeg)	NC	NC	NC	BKD confirmed in Pond 1. One medicated feed treatment was administered during the production cycle. Would like to treat again prior to release.	NC
Panther Cr. Egg Box (PahSeg)	NC	NC			
<i>Sawtooth Fish Hatchery (SOP Sections 2.6 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	Projected release of 102,300 is 68% of the release goal. This shortage is due to very low adult natural returns.	NC	NC	NC	NC
Sawtooth Weir Segregated (USRSeg)	Projected release of 1,172,000 is 76% of the release goal. This shortage is due to low adult returns.	NC	NC	NC	NC
Yankee Fork (USRSeg)	NC	NC	NC	NC	NC

2.3. Trap Operations and Production Planning for 2020 (Smolt BY 2020)

2.3.1. Trap Operations and Production Planning for 2020 (Smolt BY 2020) – TOTALS

Table 2.3a. BY 2020 Sp/Su Chinook Smolt Production Goals for Release in 2022.

Hatchery	Release Site	Stock	2022 Smolt Release Goals
RRFH	Rapid River Hatchery	RapidR	2,500,000
	Little Salmon	RapidR	150,000
	Hells Canyon	RapidR	350,000
	Total		3,000,000
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	250,000
	Sawtooth Weir - Segregated	USRSeg	1,450,000
	Yankee Fork	USRSeg	300,000
	Total		2,000,000
PFH	Pahsimeroi Weir - Integrated	PahInt	65,000
	Pahsimeroi Weir - Segregated	PahSeg	935,000
	Total		1,000,000
McFH	SFSR Knox Br. - Integrated	SFSRInt	150,000
	SFSR Knox Br. - Segregated	SFSRSeg	850,000
	Johnson Creek	JohnCr	150,000
	Total		1,150,000
Grand Total			7,150,000

Table 2.3b. Sp/Su Chinook Egg Releases in 2020 and Egg Transfers used for BY 2020 Smolt Production (Release in 2022).

Program	Release Location	Hatchery Egg Source	Stock	Green Egg Target	Eyed Egg BY2020 Goal	Smolt BY2020 Release Goal
Egg Box Release						
SBT Eggbox	Curtis/Cabin Creek	McFH	SFSRSeg	344,372	300,000	NA
SBT Eggbox ¹	Panther Creek	PFH	PahSeg	918,326	800,000	NA
Egg Transfer						
Clearwater Su Chinook ²	Powell Ponds	McFH/CFH	SFSRSeg/CFH	770,891	666,667	640,000

¹ Brood for these eggs are not included in stated brood goals and will come from fish trapped in excess of brood needs for onsite smolt production

² Brood for these eggs are not included in stated brood goals and will come from fish trapped in excess of brood needs for onsite smolt and egg box programs. Prioritization of excess fish between recycling to fisheries, Tribal C&S, foodbank outplants and green egg needs for the Clearwater Hatchery Summer Run Program will occur in-season between State and Tribal managers.

Table 2.3c. BY2020 SMOLTS -Chinook Spawning for BY 2020 - Based on Brood Calculator.

Green Egg Goal					Spawning Goal						Broodstock Trapping Goals by Brood Source																														
Spawning Facility	Stock	Rearing Hatchery	Release Site	Green Egg Goal	Fecundity	Spawn Goal						Projected Returns					Trapping Goal ³																								
						HORSeg ⁴		HORInt ⁵		NOR ⁶		LGD		Trap ¹			HORSeg ⁴		HORInt ⁵		NOR ⁶		Total																		
						Female	Male	Female	Male	Female	Male	HORSeg ⁴	HORInt ⁵	NOR ⁶	HORInt ⁵	NOR ⁶	Female	Male	Female	Male	Female	Male																			
RRFH	RapidR	RRFH	Rapid River Trap	4,012,632	3,731	1077	1077																																		
			Little Salmon																																						
			Hells Canyon Trap																																						
SFH	USRIInt	SFH	Salmon R. - Co. Line Br. - Integrated	304,438	4,600			4	2	62	61		35	492	22	313			6	4	63	62	135																		
	USRSeg	SFH	Sawtooth Weir - Seg	1,779,603	4,600	387	387					1,678						399	399					798																	
			Yankee Fork	368,194	4,600	81	81							110					84	84					168																
PFH	PahInt	PFH	Pahsimeroi - Int	80,033	4,500			5	5	13	13		58	131	46	104			5	5	16	15	41																		
	PahSeg	PFH	Pahsimeroi - Seg	1,266,376	4,500	282	282					317						332	332					664																	
			SBT Eggbox - Panther Cr. ²			TBD	TBD												TBD	TBD					0																
SFSR	SFSRIInt	McFH	SFSR - Int ⁷	202,572	4,000			4	3	46	39		155	350	106	239			6	5	48	44	103																		
	SFSRSeg	McFH	SFSR - Seg ⁷	1,262,699	4,000	316	316					1,226						351	351					703																	
			SBT Eggbox - Curtis/Cabin Cr. ⁷	344,372	4,000	87	87												97	97					194																
			Clearwater Su Chinook ²	770,891	4,000	193	193												203	203					407																
	JohnCr	McFH	Johnson Creek	212,523	4,500					48	48											57	57	115																	

¹These trap projections are only for natural origin returns (NORs) and integrated hatchery origin fish (HORInt)

²Brood for these eggs are not included in stated brood goals and will come from fish trapped in excess of brood needs for onsite smolt and egg box programs. Prioritization of excess fish between recycling to fisheries, Tribal C&S, foodbank, outplants and green egg needs for the Clearwater Hatchery Summer Run Program will occur in-season between State and Tribal managers.

³Broodstock trapping need is dictated by number of females needed

⁴HORSeg: Adult Hatchery Origin fish that are progeny of a Segregated program

⁵HORInt: Adult Hatchery Origin fish that are progeny of an Integrated program

⁶NOR: Adult Natural Origin fish

⁷After fulfilling brood stock needs for integrated production, prescribed sliding scale releases above weir to spawn, and segregated brood stock (up to 30%), eggs from integrated adults could be used to supply eggs for the egg box program.

Table 2.3d. BY2020 - Sp/Su Chinook Adult broodstock acquisition schedules for hatchery programs.

Date	Rapid River Fish Hatchery	Sawtooth Fish Hatchery			Pahsimeroi Fish Hatchery			South Fork Salmon River Weir			Johnson Creek Weir
	RapidR	USR			Pah			SFSR			JohnCr
		HORSeg	HORInt	NOR	HORSeg	HORInt	NOR	HORSeg	HORInt	NOR	NOR
2-May	16	0	0	0	0	0	0	0	0	0	0
9-May	23	0	0	0	0	0	0	0	0	0	0
16-May	43	0	0	0	0	0	0	0	0	0	0
23-May	98	0	0	0	0	0	0	0	0	0	0
30-May	187	0	0	0	0	0	0	0	0	0	0
6-Jun	328	0	0	0	0	0	0	0	0	0	0
13-Jun	536	38	1	9	2	0	4	6	0	0	3
20-Jun	911	115	3	31	51	0	10	60	0	0	6
27-Jun	1,374	290	4	57	200	0	17	150	1	12	14
4-Jul	1,832	520	5	76	336	0	20	299	3	39	31
11-Jul	2,085	656	6	87	430	0	22	449	5	62	46
18-Jul	2,197	741	8	95	490	0	24	651	7	74	53
25-Jul	2,266	800	8	104	501	0	24	719	8	81	59
1-Aug	2,330	821	8	115	533	0	24	839	9	88	61
8-Aug	2,347	829	8	120	560	0	26	958	9	90	73
15-Aug	2,359	868	8	125	574	0	27	1078	10	90	90
22-Aug	2,366	925	9	125	592	0	28	1171	11	92	104
29-Aug	2,370	955	10	125	599	0	29	1199	11	92	111
5-Sep	2,370	965	10	125	615	0	31	1302	11	92	114
12-Sep	2,370	965	10	125	638	0	31	1302	11	92	114
19-Sep	2,370	965	10	125	655	0	31	1302	11	92	114
26-Sep	2,370	965	10	125	664	0	31	1302	11	92	114
Total	2,370	965	10	125	664	10	31	1302	11	92	114
Forecasted	8,982	1,678	35	492	317	58	131	1,226	155	350	14

Proportion of brood acquisition over season											
Date	Rapid River Fish Hatchery	Sawtooth Fish Hatchery			Pahsimeroi Fish Hatchery			South Fork Salmon River Weir			Johnson Creek Weir
	RapidR	USR			Pah			SFSR			JohnCr
		HORSeg	HORInt	NOR	HORSeg	HORInt	NOR	HORSeg	HORInt	NOR	NOR
2-May	0.007	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9-May	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
16-May	0.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23-May	0.041	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
30-May	0.079	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
6-Jun	0.138	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
13-Jun	0.226	0.039	0.125	0.069	0.003	0.000	0.122	0.005	0.000	0.000	0.025
20-Jun	0.385	0.119	0.250	0.250	0.077	0.000	0.317	0.046	0.000	0.000	0.050
27-Jun	0.580	0.300	0.375	0.458	0.301	0.000	0.537	0.115	0.091	0.129	0.125
4-Jul	0.773	0.539	0.500	0.611	0.507	0.000	0.634	0.230	0.273	0.419	0.275
11-Jul	0.880	0.680	0.625	0.694	0.648	0.000	0.707	0.345	0.455	0.677	0.400
18-Jul	0.927	0.768	0.750	0.764	0.738	0.000	0.780	0.500	0.636	0.806	0.463
25-Jul	0.956	0.829	0.750	0.833	0.755	0.000	0.780	0.552	0.727	0.882	0.513
1-Aug	0.983	0.850	0.750	0.917	0.803	0.000	0.780	0.645	0.818	0.957	0.538
8-Aug	0.990	0.859	0.750	0.958	0.844	0.000	0.854	0.736	0.818	0.978	0.638
15-Aug	0.995	0.900	0.750	1.000	0.865	0.000	0.878	0.828	0.909	0.978	0.788
22-Aug	0.998	0.959	0.875	1.000	0.893	0.000	0.902	0.899	1.000	1.000	0.913
29-Aug	1.000	0.990	1.000	1.000	0.903	0.000	0.927	0.921	1.000	1.000	0.975
5-Sep	1.000	1.000	1.000	1.000	0.927	0.000	1.000	1.000	1.000	1.000	1.000
12-Sep	1.000	1.000	1.000	1.000	0.962	0.000	1.000	1.000	1.000	1.000	1.000
19-Sep	1.000	1.000	1.000	1.000	0.988	0.000	1.000	1.000	1.000	1.000	1.000
26-Sep	1.000	1.000	1.000	1.000	1.000	0.000	1.000	1.000	1.000	1.000	1.000

2.3.2. Trap Operations and Production Planning for 2020 (Smolts BY 2020) – NARRATIVE

Here are examples of things managers were instructed to discuss for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

Juvenile/Egg Release Location	Plan for 2020 (BY 2020)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
<i>Rapid River Fish Hatchery and Hells Canyon Traps (SOP Section 2.2)</i>					
Rapid River Hatchery (RapidR)	NC	NC	NC	NC	NC
Little Salmon R. (RapidR)	NC	NC	NC	NC	NC
Hells Canyon (RapidR)	NC	NC	NC	NC	NC
<i>South Fork Salmon River and Johnson Creek Weirs (SOP Sections 2.3 and 2.4)</i>					
Johnson Cr. (JohnCr)	NC	NC	NC	NC	NC
SFSR Knox Bridge Integrated (SFSRInt)	NC	NC	NC	NC	NC
SFSR Knox Bridge Segregated (SFSRSeg)	NC	NC	NC	NC	NC
SBT Egg Box – Curtis/Cabin Cr. (SFSRSeg)	NC	NC	NC	NC	NC

Juvenile/Egg Release Location	Plan for 2020 (BY 2020)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
Clearwater Fish Hatchery Egg Transfer Segregated-SUM (SFSRSeg-CFH)	NC	NC	NC	NC	NC
<i>Pahsimeroi Fish Hatchery Trap (SOP Section 2.5)</i>					
Pahsimeroi Weir Integrated (PahInt)	NC	NC	NC	NC	NC
Pahsimeroi Weir Segregated (PahSeg)	NC	NC	NC	NC	NC
SBT Egg Box - Panther Creek (PahSeg)	NC	NC	NC	NC	NC
<i>Sawtooth Fish Hatchery (SOP Sections 2.6, 2.7 and 2.8)</i>					
East Fork Salmon River Weir (EFNat)	NC	NC	NC	NC	NC
Sawtooth Weir Integrated (USRInt)	NC	NC	NC	NC	NC
Sawtooth Weir Segregated (USRSeg)	NC	NC	NC	NC	NC
Yankee Fork (USRSeg)	NC	NC	NC	NC	NC

2.4. Early Rearing and Marking Plan for 2020 (Smolt BY 2019)

2.4.1. Early Rearing and Marking Plan for 2020 (Smolt BY 2019) – TOTALS

Table 2.4a. Sp/Su Chinook Projected Marking of BY 2019 juveniles to be marked in 2020 (released in 2021).

Hatchery	Release Site	Stock	Likely Marking Date(s)	Release Goals for 2020	Inventory to Date		Projected Release Number	Projected Marking				PIT Tags				
					Date	Number		Adipose Fin Clip		No Clip		Total # Tags	Funding Source			
								No CWT	CWT	CWT	No CWT		CSS	LSRCP	IPC	BPA
RRFH	Rapid River Hatchery	RapidR	6/8-6/26	2,500,000	2/10/2020	3,378,651	2,500,000	3,191,000	120,000	-	-	52,000	32,000	-	20,000	-
	Little Salmon	RapidR		150,000			200,000		-	-	-		-	-	-	-
	Hells Canyon	RapidR		350,000			611,000		-	-	-		-	-	-	-
Totals				3,000,000		3,378,651	3,311,000	3,191,000	120,000	-	-	52,000	32,000	-	20,000	-
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	5/11-5/17	250,000	1/31/2020	149,241	144,764	-	-	144,764	-	1,000	-	1,000	-	-
	Sawtooth Weir - Segregated	USRSeg	5/11-5/17	1,450,000	1/31/2020	1,169,145	1,134,145	1,014,145	120,000	-	-	18,900	5,700	13,200	-	-
	Yankee Fork	USRSeg	5/11-5/17	300,000	1/31/2020	204,947	198,800	78,800	120,000	-	-	2,500	700	1,800	-	-
Totals				2,000,000		1,523,333	1,477,709	1,092,945	240,000	144,764	-	22,400	6,400	16,000	-	-
PFH	Pahsimeroi Weir - Integrated	PahInt	5/18-5/23	65,000	12/31/2019	49,997	47,366	-	-	47,366	-	-	-	-	-	-
	Pahsimeroi Weir - Segregated	PahSeg	5/18-5/23	935,000	12/31/2019	884,522	837,694	751,487	120,000	-	-	21,400	6,400	-	15,000	-
Totals				1,000,000		934,519	885,060	751,487	120,000	47,366	-	21,400	6,400	-	15,000	-
McFH	SFSR Knox Br. - Integrated	SFSRInt	July 2020	150,000	1/31/2020	138,634	134,475	-	-	134,475	-	26,000	26,000	-	-	-
	SFSR Knox Br. - Segregated	SFSRSeg	June/July 2020	850,000	1/31/2020	961,728	932,876	822,493	120,000	-	-	26,000	6,000	20,000	-	-
	Johnson Creek	JohnCr	July 2020	150,000	1/31/2020	104,050	100,928	-	-	101,969	-	2,000	-	-	-	2,000
Totals				1,150,000		1,204,412	1,168,279	822,493	120,000	236,444	-	54,000	32,000	20,000	-	2,000
Grand Totals				7,150,000		7,040,915	6,842,048	5,857,925	600,000	428,574	-	149,800	76,800	36,000	35,000	2,000

2.4.2. Early Rearing and Marking Plan for 2020 (Smolt BY 2019) – NARRATIVE

Here are examples of things managers were instructed to discuss for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Juvenile Fish Health - observed fish health issues, what action was taken and how was the treatment implemented, anticipated changes to normal fish health sampling or treatments
- Fish feeding - changes of diets of feed manufacturer, growth regimes etc.
- Rearing conditions - incubation, water temp, flow, rearing density changes
- Marking - e.g. schedule changes, planned changes to fish handling or movement, marking schedule, raceway loading for PBT etc.
- Meets Release Target - . If projected marking lines up with the current inventory, then no comment is needed at this bullet (enter NC). If current inventory is 10% above or below the projected numbers, provide the projected release, % above/below then explain why.

Release Location	Plan for 2020 (BY 2019)				
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking	Meets Release Target
<i>Rapid River Fish Hatchery (SOP Section 2.2)</i>					
Rapid River Hatchery (RapidR)	NC	NC	NC	NC	NC
Little Salmon R. (RapidR)	NC	NC	NC	NC	NC
Hells Canyon (RapidR)	NC	NC	NC	NC	NC
<i>McCall Fish Hatchery (SOP Section 2.3 and 2.4)</i>					
Johnson Cr. (JohnCr)	NC	NC	NC	NC	NC
Knox Bridge Integrated (SFSRInt)	NC	NC	NC	Marking moved to October.	Below release goal (~10% of target).
Knox Bridge Segregated (SFSRSeg)	NC	NC	NC	Marking moved to October.	NC
<i>Pahsimeroi Fish Hatchery (SOP Section 2.5)</i>					
Pahsimeroi Ponds Integrated (PahInt)	NC	NC	NC	NC	Pahsimeroi experienced high BKD culling rates. Approximately 50,000 for 2021 release. ~25% short of release goal.

Release Location	Plan for 2020 (BY 2019)				
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking	Meets Release Target
Pahsimeroi Ponds Segregated (PahSeg)	NC	NC	NC	NC	Pahsimeroi experienced high BKD culling rates. Approximately 875,000 for 2021 release. ~13% short of release goal.
<i>Sawtooth Fish Hatchery (SOP Sections 2.6 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	NC	NC	NC	NC	Below release goal (~58% of target) due to low adult returns.
Sawtooth Weir Segregated (USRSeg)	NC	NC	NC	NC	Below release goal (~78% of target) due to low adult returns.
Yankee Fork (USRSeg)	NC	NC	NC	NC	Due to brood shortage, release goal changed to 200,000k

3. Fall Chinook

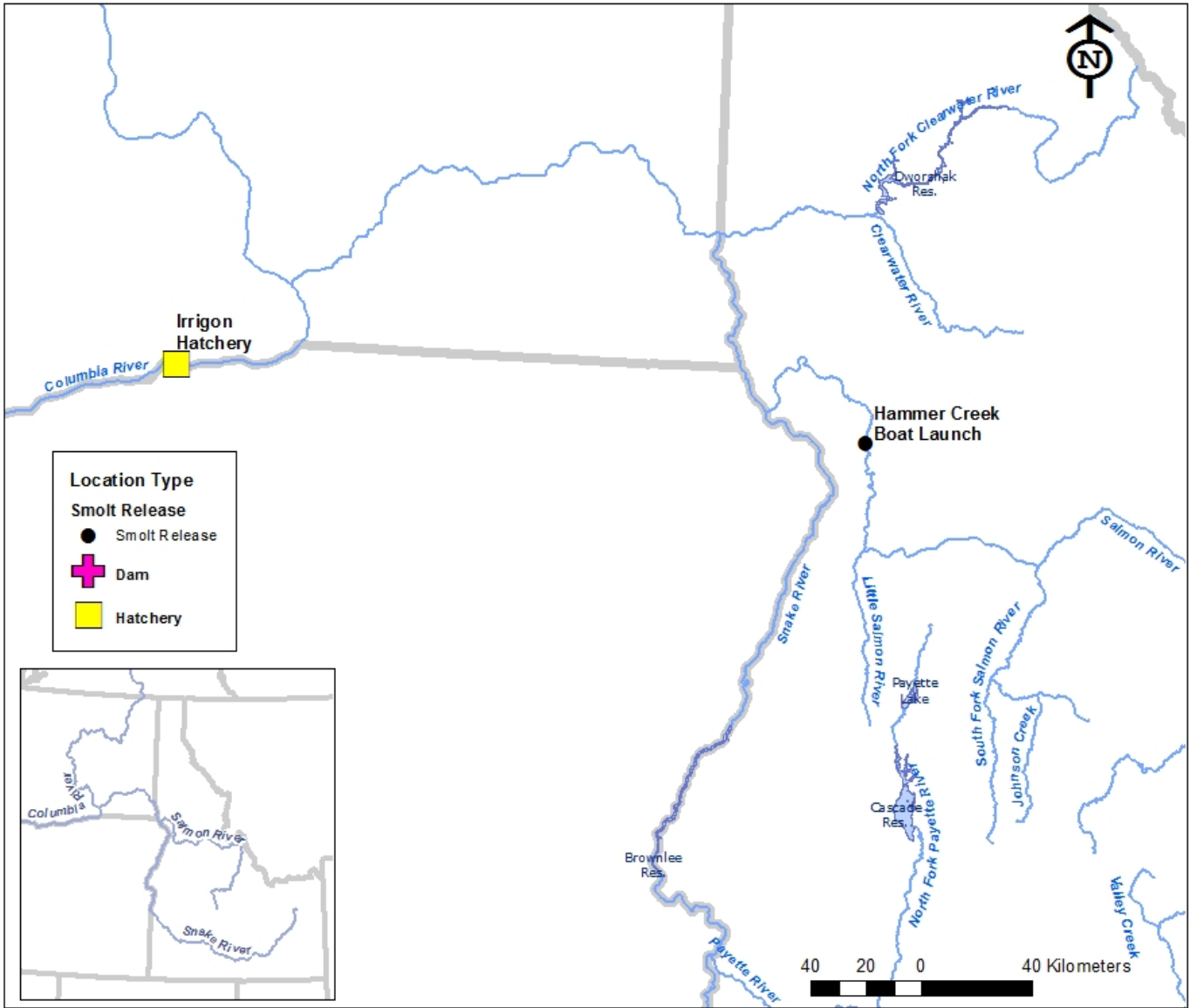


Figure 3.1. Fall Chinook Salmon facilities and smolt release locations.

Table 3.1. Fall Chinook Release Goals.

Hatchery	Release Site	Release Goals
IFH	Salmon R.-Hammer Cr	1,000,000

3.1. Releases in 2020 (Sub-Yearling BY 2019)

3.1.1. Releases in 2020 (Sub-Yearling BY 2019) – Totals

Table 3.2a. BY2019 Fall Chinook Sub-yearling Marking and Releases in 2020.

Hatchery	Release Site	Likely Release Date	Release Goals	Projected Actual Releases					
				Total	Adipose Fin Clip		No Clip		PIT Tag
					No CWT	CWT	CWT	No CWT	
IFH	Salmon R.-Hammer Cr	5/17 and 5/19/20	1,000,000	1,000,000		200,000		800,000	4,500

3.1.2. Releases in 2020 (Sub-Yearling BY 2019) - Narrative

Here are examples of things managers talk about for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Smolt Release Targets- e.g. Were you below goal? Was you size at release different than SOP target? Did you depart from the mark plan?
- Fish Health- any epizootic history, anti-biotic treatments, was production culled at any point
- Transportation/Releases- e.g. timing, trucking issues, site access etc.

Location	Smolt Release Target	Fish Health	Transportation/Releases
<i>Irrigon Fish Hatchery (IDFG) (SOP Section 3.1)</i>			
Salmon R. - Hammer Cr.	NC	NC	NC

3.2. Trap Operations and Production Planning for 2020 (Sub-Yearling BY 2020)

Refer to Lyons Ferry AOP

3.3. Marking and Rearing Plan for 2020 (Sub-Yearling BY 2019)

Refer to Lyons Ferry AOP

4. Sockeye

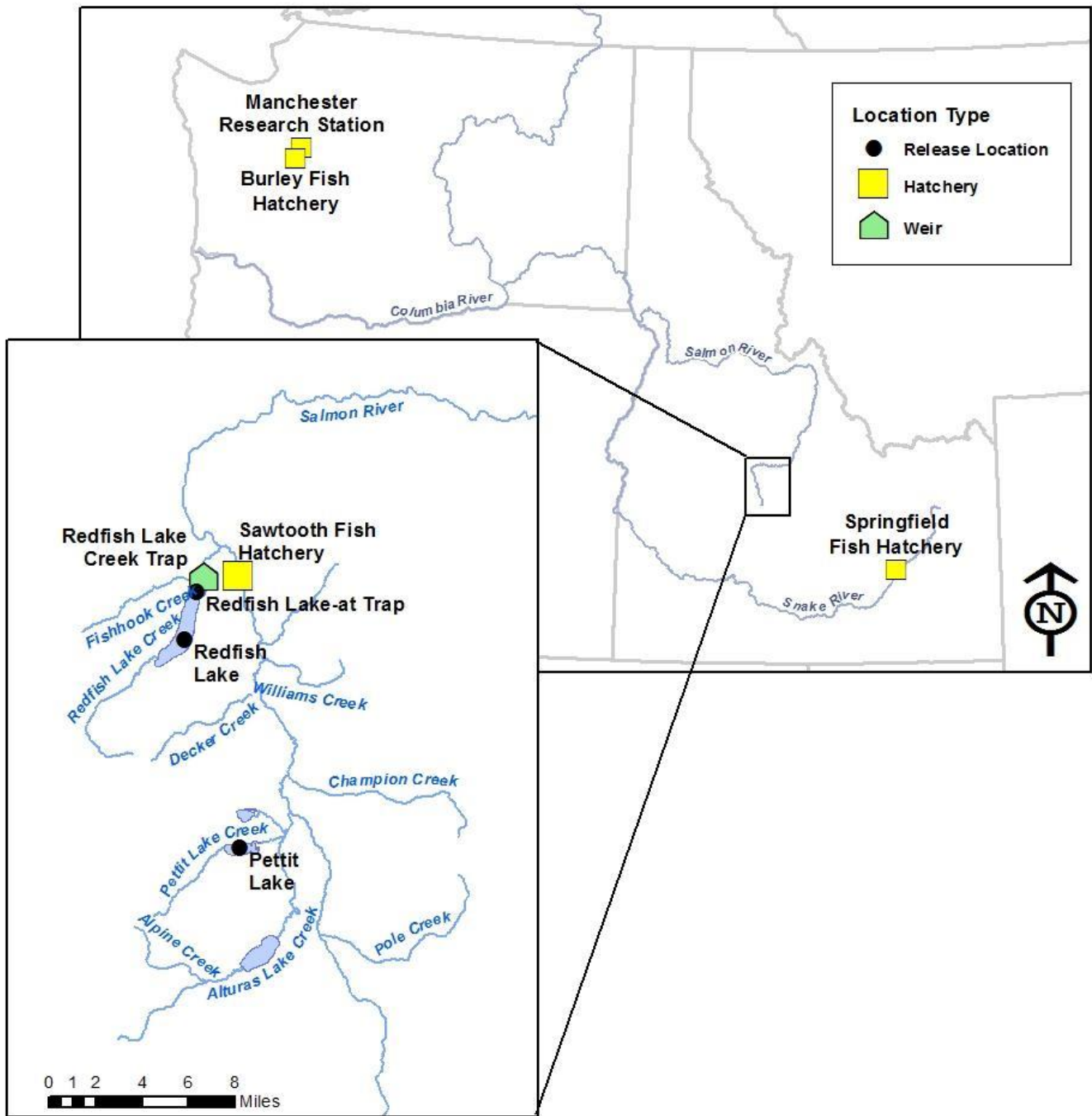


Figure 4.1. Sockeye salmon traps, hatchery facilities, and smolt and adult release

Table 4.1. Sockeye 2020 Release Goals.

Rearing Facility	Release Site	Parent Stock	2020 Smolt Release Goal (BY 2018)
Springfield	Redfish Lake Cr. ¹	Snake R.	1,000,000
Grand Total			1,000,000

Rearing Facility	Release Site	Parent Stock	Brood Year	2020 Captive-Reared Minimum Adult Release Goal ²
NOAA - Burley Creek	Redfish Lake	Snake R.	2015	-
	Redfish Lake	Snake R.	2016	50
	Redfish Lake	Snake R.	2017	100
	Pettit Lake	Snake R.	2017	100
Total				250
Eagle Fish Hatchery	Redfish Lake	Snake R.	2016	-
	Redfish Lake	Snake R.	2017	100
Total				100
Grand Total				350

¹Smolts are acclimated at Sawtooth Fish Hatchery for ~2 weeks prior to release.

²The minimum release target for the Sockeye captive broodstock program is 250 adults to Redfish Lake and 100 adults to Pettit Lake. This can be made up of anadromous returns, captive broodstock from Eagle FH, and captive broodstock from Burley Creek FH (NOAA Fisheries).

4.1. Timeline and Flowchart for Sockeye Salmon Production

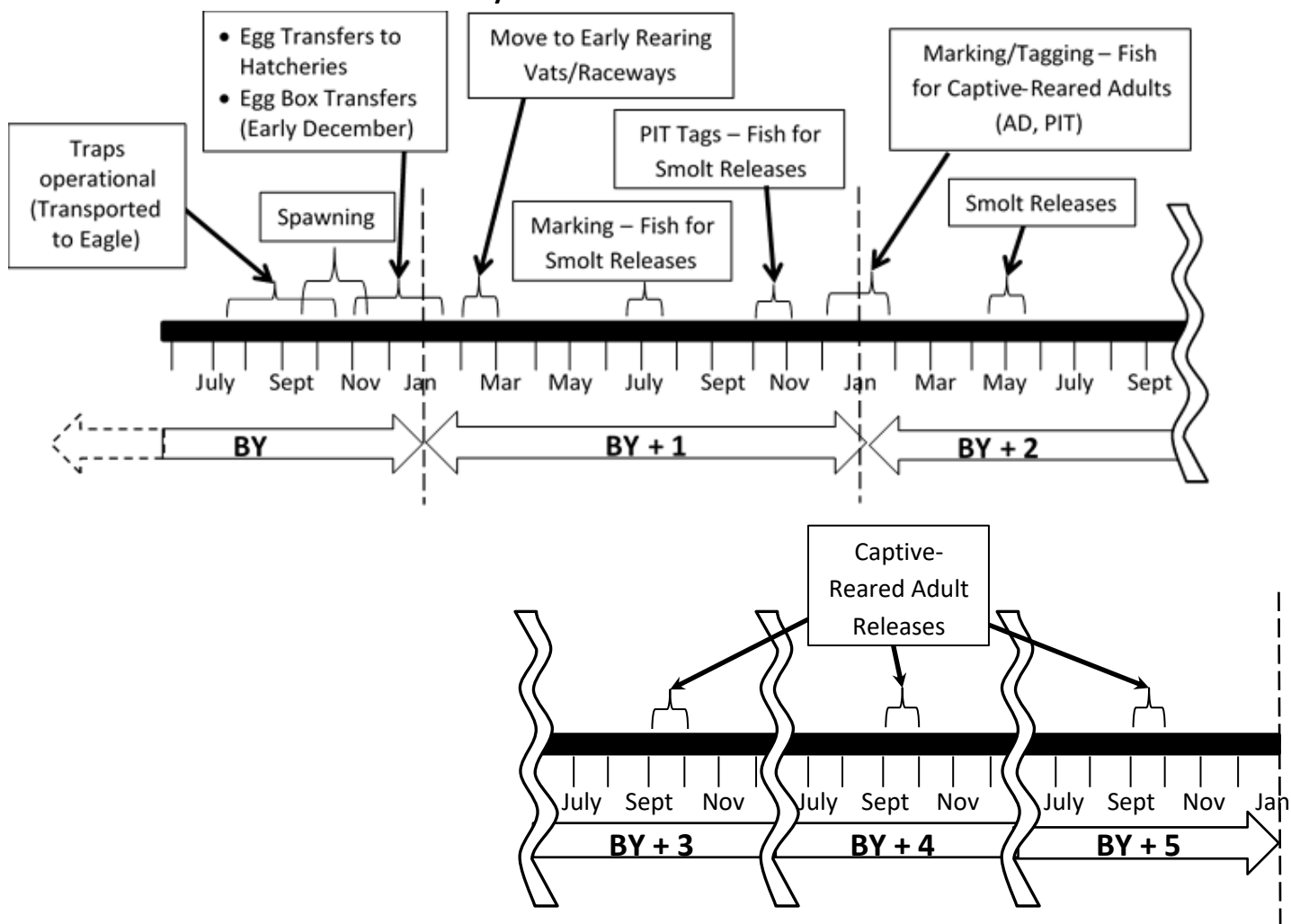


Figure 4.2. Timeline for Sockeye Salmon production. Date ranges are shown to include all facilities'

Sockeye

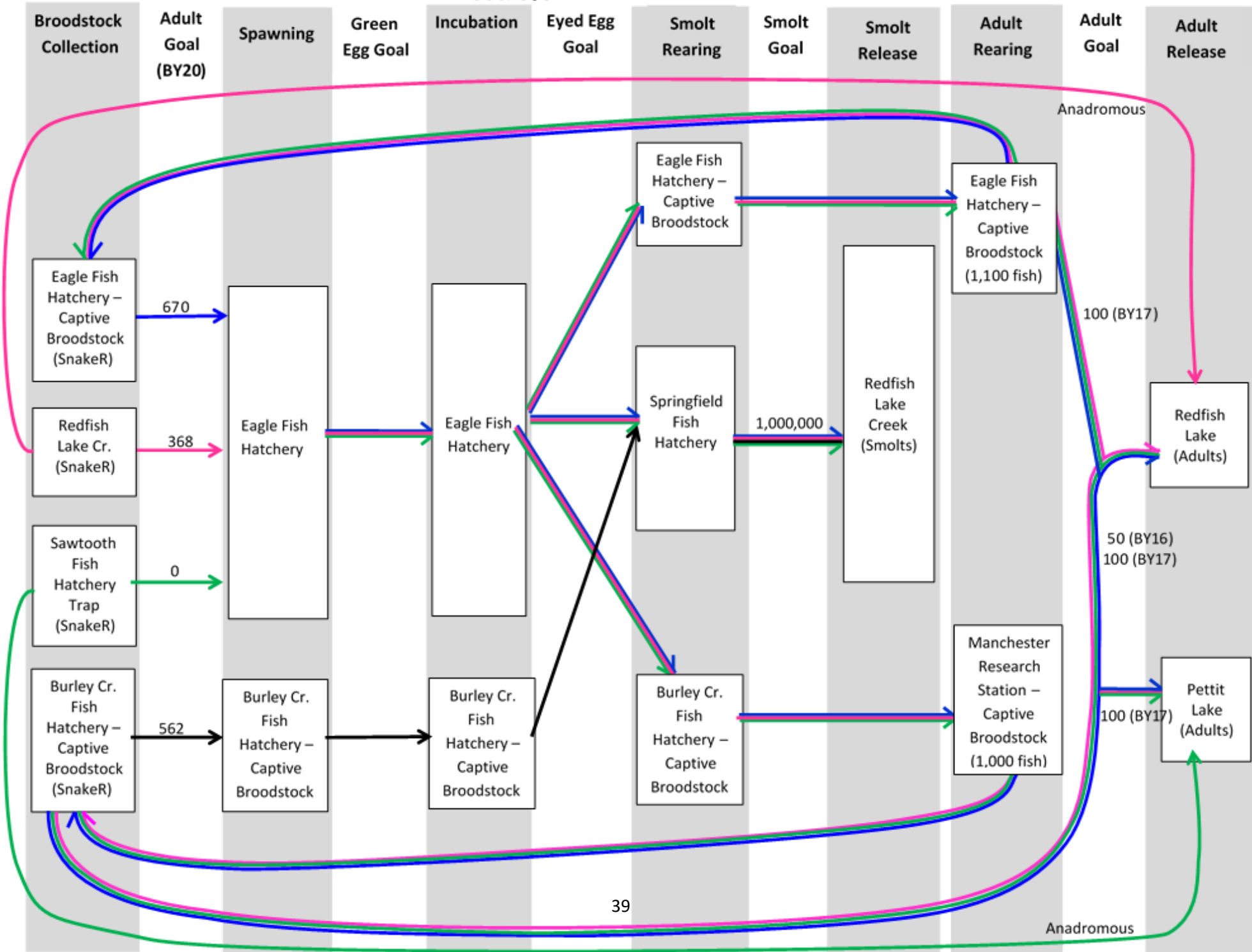


Figure 4.3. Fish and Egg movements for Sockeye. Numbers reflect 2020 releases.

4.2. Releases in 2020 (Smolt BY18, Captive Adult BY17, BY16, BY15)

4.2.1. Releases in 2020 (Smolt BY18, Captive Adult BY17, BY16, BY15) – Totals

Table 4.2a. Sockeye Captive-Reared Adult Releases in 2020.

Hatchery	Brood year	Release Site	Stock	Likely Release Date	Captive Adult Release Goals ¹
NOAA - Burley Creek	2015	Redfish Lake	Snake R.	Sept.	-
	2016	Redfish Lake	Snake R.	Sept.	50
	2017	Redfish Lake	Snake R.	Sept.	100
	2017	Pettit Lake	Snake R.	Sept.	100
Total					250
Eagle	2016	Redfish Lake	Snake R.	Sept.	-
	2017	Redfish Lake	Snake R.	Sept.	100
Total					100
Grand Total					350

¹All adults will receive a PIT tag prior to release

Table 4.2b. BY 2018 Sockeye Smolt Releases in 2020.

Hatchery	Release Site	Stock	Likely Release Date	Release Goals	Projected Actual Releases					PIT Tags		
					Total	Adipose Fin Clip		No Clip		Total # Tags	Funding Source	
						No CWT	CWT	CWT	No CWT		CSS	BPA
Springfield	Redfish Lake Cr. ¹	Snake R.	May	1,000,000	941,000	941,000				49,971	39,771	10,200
Grand Total				1,000,000	941,000	941,000	0	0	0	49,971	39,771	10,200

¹Smolts are acclimated at Sawtooth Fish Hatchery for ~2 weeks prior to release.

4.2.2. Releases in 2020 (Smolt BY18, Captive Adult BY17, BY16, BY15) – Narrative

Here are examples of things managers talk about for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Smolt/Egg Release Targets- e.g. Were you below goal? Was you size at release different than SOP target? Did you depart from the mark plan?
- Fish/Egg Health- any epizootic history, anti-biotic treatments, was production culled at any point
- Transportation/Releases- e.g. timing, trucking issues, site access etc

Location	Plan for 2020		Changes/Conditions that Occurred 2019- Early 2020
	Release Target Smolt BY18, Adult BY17, BY16, BY15	Transport/Release Smolt BY18, Adult BY17, BY16, BY15	Fish/Egg Health BY18, BY17, BY16, BY15
<i>Eagle Fish Hatchery (SOP Section 4.3)</i>			
Redfish Lake – Adult Releases (SnakeR)	NC	NC	NC
Alturas Lake – Egg Releases (SnakeR)	NC	NC	NC
<i>Burley Creek Fish Hatchery (NOAA) (SOP Section 4.3)</i>			
Redfish Lake – Adult Releases (SnakeR)	NC	NC	NC
<i>Springfield Fish Hatchery (SOP Section 4.4)</i>			
Redfish Lake Creek– Smolt Releases (SnakeR)	NC	NC	NC

4.3. Trap Operations and Production Planning for 2020 (BY 2020 for Smolt and Captive Adult Programs)

4.3.1. Trap Operations and Production Planning for 2020 (BY 2020 for Smolt and Captive Adult Programs) – TOTALS

Table 4.3a. Sockeye Spawning for BY 2020.

Site	Stock	Type	Forecast return/ Available Broodstock	Trapping period	Broodstock Need ¹			
					M:F Ratio	Female	Male	Total
Redfish Lake Creek	Snake R.	Anad	790	7/15 - 10/15	1:1	184	184	368
Sawtooth	Snake R.	Anad	5	7/1 - 9/20	1:1			0
Eagle FH ²	Snake R.	Captive	1,100	NA	1:1	335	335	670
Burley Creek ²	Snake R.	Captive	1,000	NA	1:1	281	281	562
Grand Total			2895			800	800	1600

¹ Broodstock needs are estimates based on anadromous run forecast. Proportion of anadromous and captive broodstocks may be adjusted realtime based on actual number of anadromous Sockeye trapped.

² This number reflects estimated number of captive broodstock available for spawning.

4.3.2. Trap Operations and Production Planning for 2020 (BY 2020 for Smolt and Captive Adult Programs) – NARRATIVE

Here are examples of things managers were instructed to discuss for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

Location	Plan for 2020 (BY 2020)					
	Adult Fish Health	Trap Ops	Forecast Returns	Broodstock Needs	Spawning protocol changes	Disposition of adults
<i>Eagle Fish Hatchery (SOP Section 4.3)</i>						
Eagle FH Captive Broodstock (SnakeR)	NC	NC	NC	NC	NC	NC
<i>Burley Creek Fish Hatchery (SOP Section 4.3)</i>						
Burley Cr. FH Captive Broodstock (SnakeR)	NC	NC	NC	NC	NC	NC
<i>Sawtooth Fish Hatchery (SOP Sections 4.2 and 4.5)</i>						
Redfish Lake Creek (SnakeR)	NC	NC	NC	NC	NC	NC
Sawtooth Trap (SnakeR)	NC	NC	NC	NC	NC	NC

4.4. Marking and Rearing Plan for 2020 (Smolt BY 2019)

4.4.1. Marking and Rearing Plan for 2020 (Smolt BY 2019) – TOTALS

Table 4.4a. BY 2019 Sockeye Marking in 2020.

Hatchery	Release Site	Stock	Likely Release Date	Release Goals for 2021	Projected Actual Releases					PIT Tags ¹		
					Total	Adipose Fin Clip		No Clip		Total # Tags	Funding Source	
						No CWT	CWT	CWT	No CWT		CSS	BPA
Springfield	Redfish Lake Cr.	Snake R.	May 2021	1,000,000	1,075,000	1,075,000				50,000	39,800	10,200
Grand Total				1,000,000	1,075,000	1,075,000	0	0	0	50,000	39,800	10,200

¹PIT tag distribution between release groups is currently being discussed.

4.4.2. Marking and Rearing Plan for 2020 (Smolt BY 2019) – NARRATIVE

Here are examples of things managers were instructed to discuss for each release group, if there are departures from the norm (i.e., SOP). If no departure from the norm, enter NC for “No Change”.

- Fish Health - anticipated changes to normal fish health sampling or treatments
- Fish feeding - changes of diets of feed manufacturer, growth regimes etc.
- Rearing conditions - incubation, water temp, flow, rearing density changes
- Marking - e.g. schedule changes, planned changes to fish handling or movement, marking schedule, raceway loading for PBT etc.

Location	Fish Health	Fish Feeding	Rearing Conditions	Marking
<i>Springfield Fish Hatchery (SOP Section 4.4)</i>				
Springfield (SnakeR)	NC	NC	NC	NC

5. Appendices

5.1. BY2020 Brood Calculator

5.1.1. BY2020 Brood Calculator – SMOLT RELEASES

PROGRAM INPUTS							HISTORICAL HATCHERY PERFORMANCE METRICS (5-YR AVG)							FORM CALCULATED VALUES									
SPECIES	HATCHERY	RELEASE SITE	STOCK	PREFERRED TRAPPING SITE	FORMAL SMOLT RELEASE GOAL (G)	COMANAGER APPROVED CUSHION % ¹ (H)	% FEMALES IN BROODSTOCK (I)	% MORTALITY DURING HOLDING (J)	GREEN EGG FECUNDITY (K)	% REMAINING AFTER DISEASE CULLING ² (L)	% SURVIVAL GREEN TO EYED EGG (M)	% SURVIVAL EYED EGG TO RELEASE (N)	RELEASE GOAL WITH CUSHION (O)	EYED EGGS (P)	GREEN EGGS (Q)	GREEN EGGS BEFORE DISEASE CULL (R)	FEMALES SPAWNED (S)	MALES SPAWNED (T)	TOTAL ADULTS SPAWNED (U)	TRAPPED ADULTS NEEDED (V)	ADULTS TRAPPED TO MEET 1:1 RATIO (W)	SMOLTS PER TRAPPED ADULTS NEEDED (X)	
STLHD	HNFH	Sawtooth Weir	SawA	SFH	1,410,000	3.00%	50%	0.00%	5,150	100.00%	92.00%	92.00%	1,452,300	1,578,587	1,715,855	1,715,855	334	334	668	668	668	2,174	
		Sawtooth Weir (RAS Eval)	SawA	SFH	90,000	3.00%	50%	0.00%	5,150	100.00%	92.00%	92.00%	92,700	100,761	109,523	109,523	22	22	44	44	44	2,107	
		E. Fork Salmon R. - Upper	EFNat	EFRSF	60,000	10.00%	50%	0.00%	5,900	100.00%	89.00%	88.90%	66,000	74,241	83,417	83,417	15	15	30	30	30	2,200	
	MVFH	Sawtooth Weir	SawA	SFH	279,000	3.00%	50%	0.00%	5,100	100.00%	94.60%	84.00%	287,370	342,107	361,635	361,635	71	71	142	142	142	2,024	
		Little Salmon R. - Stinky Sp.	PahA	PFH	186,000	10.00%	50%	0.00%	5,500	100.00%	93.00%	84.00%	204,600	243,571	261,905	261,905	48	48	96	96	96	2,131	
		Pahsimeroi Weir	USRB	PFH	251,000	0.00%	60%	5.00%	6,200	100.00%	90.00%	84.00%	251,000	298,810	332,011	332,011	54	36	90	95	143	2,642	
		Pahsimeroi Weir	DworB	DNFH	93,000	10.00%	67%	0.00%	6,681	100.00%	84.00%	84.00%	102,300	121,786	144,983	144,983	22	11	33	33	67	3,100	
	NSFH	Yankee Fork	USRB (DworB)	YFT	524,000	0.00%	60%	5.00%	6,200	100.00%	90.00%	84.00%	524,000	623,810	693,122	693,122	112	75	187	197	295	2,660	
		Little Salmon - Stinky Sp.	USRB	YFT	217,000	2.00%	60%	5.00%	6,200	100.00%	90.00%	84.00%	221,340	263,500	292,778	292,778	48	32	80	85	127	2,604	
		Pahsimeroi Weir	PahA	PFH	800,000	10.00%	50%	0.00%	5,500	100.00%	93.00%	90.00%	880,000	977,778	1,051,374	1,051,374	192	192	384	384	384	2,292	
Little Salmon R. - Stinky Sp.		PahA	PFH	200,000	10.00%	50%	0.00%	5,500	100.00%	93.00%	90.00%	220,000	244,444	262,843	262,843	48	48	96	96	96	2,292		
Little Salmon R. - Stinky Sp.		OxbA	HCT	250,000	20.00%	50%	25.00%	5,500	96.00%	83.00%	97.00%	300,000	309,278	372,625	388,151	71	71	142	190	190	1,579		
		Snake R. Hells Canyon	OxbA	HCT	550,000	20.00%	50%	25.00%	5,500	96.00%	83.00%	97.00%	660,000	680,412	819,774	853,931	156	156	312	416	416	1,587	
SP/SU CHIN	RRFH	Rapid River Hatchery	RapidR	RRFH	2,500,000	10.00%	50%	9.10%	3,731	92.60%	92.90%	95.60%	2,750,000	2,876,569	3,096,414	3,343,860	897	897	1794	1974	1974	1,393	
		Little Salmon	RapidR	RRFH	150,000	10.00%	50%	9.10%	3,731	92.60%	92.90%	95.60%	165,000	172,594	185,785	200,632	54	54	108	119	119	1,387	
		Hells Canyon	RapidR	RRFH	350,000	10.00%	50%	9.10%	3,731	92.60%	92.90%	95.60%	385,000	402,720	433,498	468,140	126	126	252	278	278	1,385	
	SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	SFH	250,000	0.00%	50%	3.00%	4,600	96.00%	94.00%	91.00%	250,000	274,725	292,261	304,438	67	67	134	139	139	1,799	
		Sawtooth Weir - Segregated	USRSeg	SFH	1,450,000	3.00%	50%	3.00%	4,600	96.00%	94.00%	93.00%	1,493,500	1,605,914	1,708,419	1,779,603	387	387	774	798	798	1,872	
		Yankee Fork	USRSeg	SFH	300,000	3.00%	50%	3.00%	4,600	96.00%	94.00%	93.00%	309,000	332,258	353,466	368,194	81	81	162	168	168	1,839	
	PFH	Pahsimeroi Weir - Integrated	PahInt	PFH	65,000	0.00%	50%	14.00%	4,500	94.00%	90.00%	96.00%	65,000	67,708	75,231	80,033	18	18	36	42	42	1,548	
		Pahsimeroi Weir - Segregated	PahSeg	PFH	935,000	10.00%	50%	15.00%	4,500	94.00%	90.00%	96.00%	1,028,500	1,071,354	1,190,394	1,266,376	282	282	564	664	664	1,549	
		SFSR Knox Br. - Integrated	SFSRInt	SFSRW	150,000	0.00%	50%	10.00%	4,000	95.00%	91.70%	85.00%	150,000	176,471	192,443	202,572	51	51	102	114	114	1,316	
		SFSR Knox Br. - Segregated	SFSRSeg	SFSRW	850,000	10.00%	50%	10.00%	4,000	95.00%	91.70%	85.00%	935,000	1,100,000	1,199,564	1,262,699	316	316	632	703	703	1,330	
McFH	Johnson Creek	JohnCr	JCW	150,000	10.00%	50%	16.00%	4,500	97.00%	87.00%	92.00%	165,000	179,348	206,147	212,523	48	48	96	115	115	1,435		
	CW Sum Chinook - Powell Ponds	SFSRSeg	SFSRW	640,000	0.00%	50%	5.00%	4,000	92.00%	94.00%	96.00%	640,000	666,667	709,220	770,891	193	193	386	407	407	1,572		
FALL CHIN	IFH	Salmon R.-Hammer Cr			1,000,000								1,000,000	#DIV/0!	#DIV/0!	#DIV/0!	#VALUE!	#VALUE!	#DIV/0!	#VALUE!	#VALUE!	#DIV/0!	
SOCKEYE	SpFH	Redfish Lake Creek	Redfish Lake	RFLC	300,000	0.00%	50.00%	2.00%	2,400	99.00%	82.16%	83.77%	300,000	358,123	435,885	440,288	184	184	368	376	376	798	
		Redfish Lake Creek	Redfish Lake	EFH CB	400,000	0.00%	50.00%	4.00%	1,800	100.00%	79.38%	83.77%	400,000	477,498	601,534	601,534	335	335	670	698	698	573	
		Redfish Lake Creek	Redfish Lake	NOAA CB	300,000	0.00%	50.00%	5.00%	1,700	100.00%	75.19%	83.77%	300,000	358,123	476,291	476,291	281	281	562	592	592	507	
CELL FORMULAS												G*(1+H)	O/(N)	P/(M)	Q/(L)	ROUNDUP(R/K,0)	S/(I)-5	T+5	ROUNDUP(U/(1-J),0)	ROUNDUP(S/(1-J),0)	O/V		

¹ In the 2013 AOP process, the co-managers approved a 10% cushion to meet release targets

² Culling of eggs for BKD, IHN, etc.

5.1.2. BY2020 Brood Calculator – EGG RELEASES

PROGRAM INPUTS							HISTORICAL HATCHERY PERFORMANCE METRICS (5-YR AVG)						FORM CALCULATED VALUES									
SPECIES	HATCHERY	RELEASE SITE	STOCK	PREFERED TRAPPING SITE	FORMAL EGG RELEASE GOAL (G)	COMANAGER APPROVED CUSHION % ¹ (H)	% FEMALES IN BROODSTOCK (I)	% MORTALITY DURING HOLDING (J)	GREEN EGG FECUNDITY (K)	% SURVIVAL AFTER DISEASE CULLING ² (L)	% SURVIVAL GREEN TO EYED EGG (M)	% SURVIVAL EYED EGG TO RELEASE (N)	EGG RELEASE GOAL WITH CUSHION (O)	EYED EGGS (P)	GREEN EGGS (Q)	GREEN EGGS BEFORE DISEASE CULL (R)	FEMALES SPAWNED (S)	MALES SPAWNED (T)	TOTAL ADULTS SPAWNED (U)	TRAPPED ADULTS NEEDED (V)	ADULTS TRAPPED TO MEET 1:1 RATIO (W)	SMOLTS PER TRAPPED ADULTS NEEDED (X)
STHD	PFH	SBT Egg Box-Yankee Fork ³	USRB (DworB)	PFH	500,000	10%	50%	5.00%	6,200	100.00%	90.00%	NA	550,000	550,000	611,111	611,111	99	99	198	209	209	2,632
	SFH	SBT Egg Box-Panther Creek	PahA	PFH	400,000	10%	50%	0.00%	5,500	100.00%	91.70%	NA	440,000	440,000	479,826	479,826	88	88	176	176	176	2,500
		SBT Egg Box-Indian Creek	PahA	PFH	100,000	10%	50%	0.00%	5,500	100.00%	91.70%	NA	110,000	110,000	119,956	119,956	22	22	44	44	44	2,500
SP/SU CHIN	PFH	Panther Creek - EGG BOX	PahSeg	PFH	800,000	0%	50%	15.00%	4,500	95%	91.70%	NA	800,000	800,000	872,410	918,326	205	205	410	483	483	1,656
	McFH	Curtis/Cabin Creek - EGG BOX	SFSRSeg	McFH	300,000	0%	50%	10.00%	4,000	95%	91.70%	NA	300,000	300,000	327,154	344,372	87	87	174	194	194	1,546

¹ In the 2013 AOP process, the co-managers approved a 10% cushion to meet release targets

² Culling of eggs for BKD, IHN, etc.

³ Eggs don't go to SFH