

**Calendar Year 2021
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

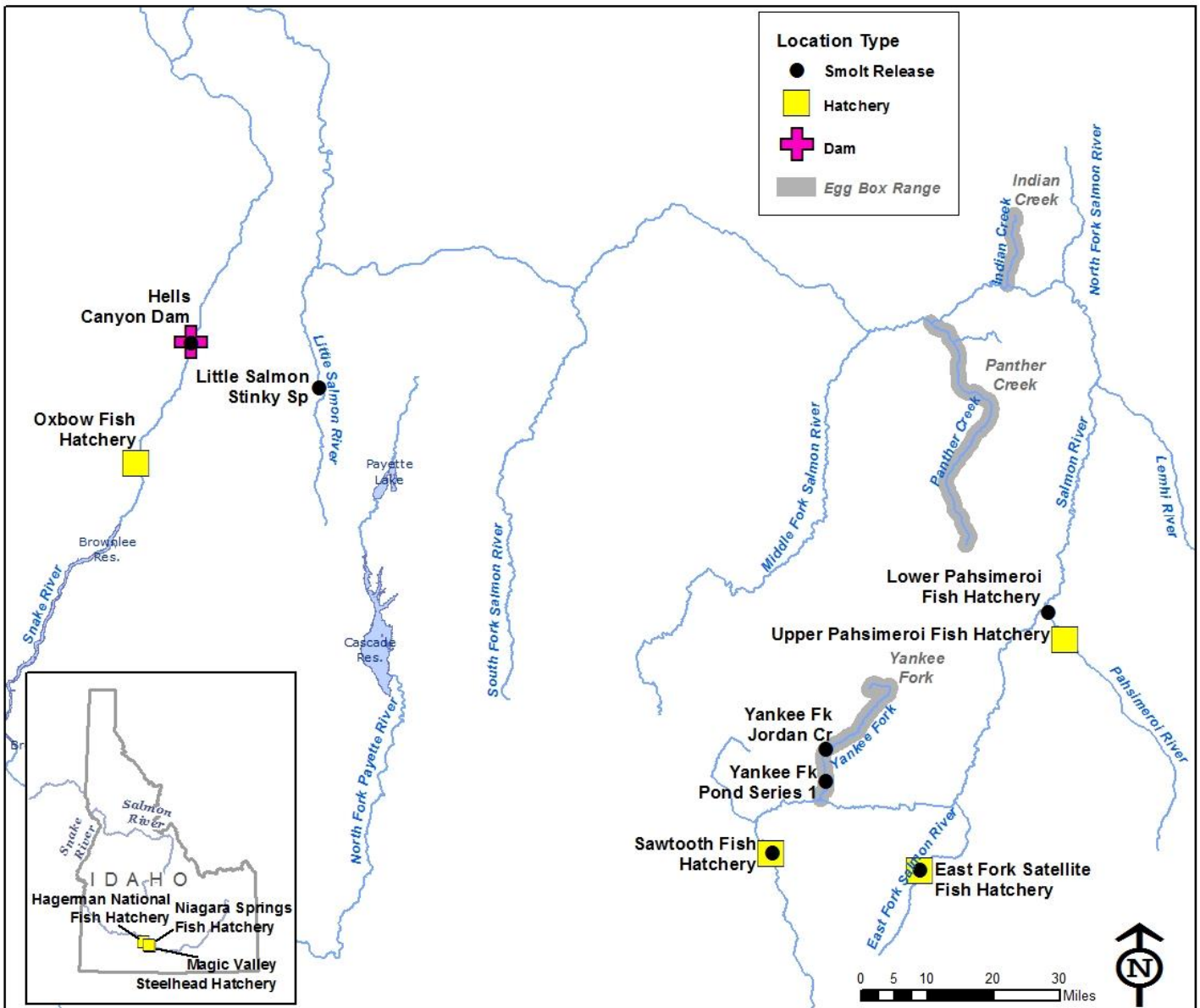


Figure 1.1. Steelhead facilities, smolt releases and egg box locations.

Table 1.1. Steelhead Release Goals.

Smolt Release Program	Rearing Facility	Release Site	Parent Stock	BY 2020 Smolt Release Goal
LSRCP / IDFG	HNFH	Sawtooth Weir	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	248,000
	MVFH	Pahsimeroi Weir	DworB	93,000
	MVFH	Yankee Fork ¹	USRB/DworB	527,000
	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.	OxB	250,000
	NSFH	Snake R. Hells Canyon	OxB	550,000
Total			1,800,000	
Grand Total				4,910,000

Egg Box Program	Hatchery Egg Source	Egg Box Site	Parent Stock	Egg Box BY2021 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.

1.1. Timeline and Flowchart for Steelhead Production

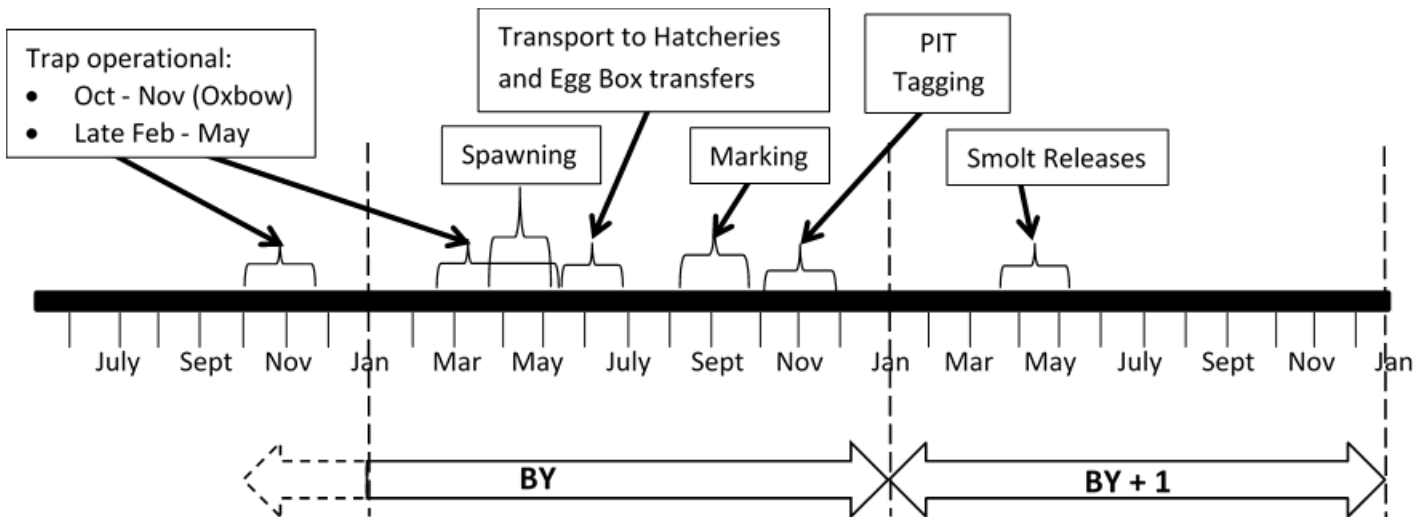


Figure 1.2. Timeline for Steelhead Production. Date ranges are shown to include all facilities' operations

STEELHEAD

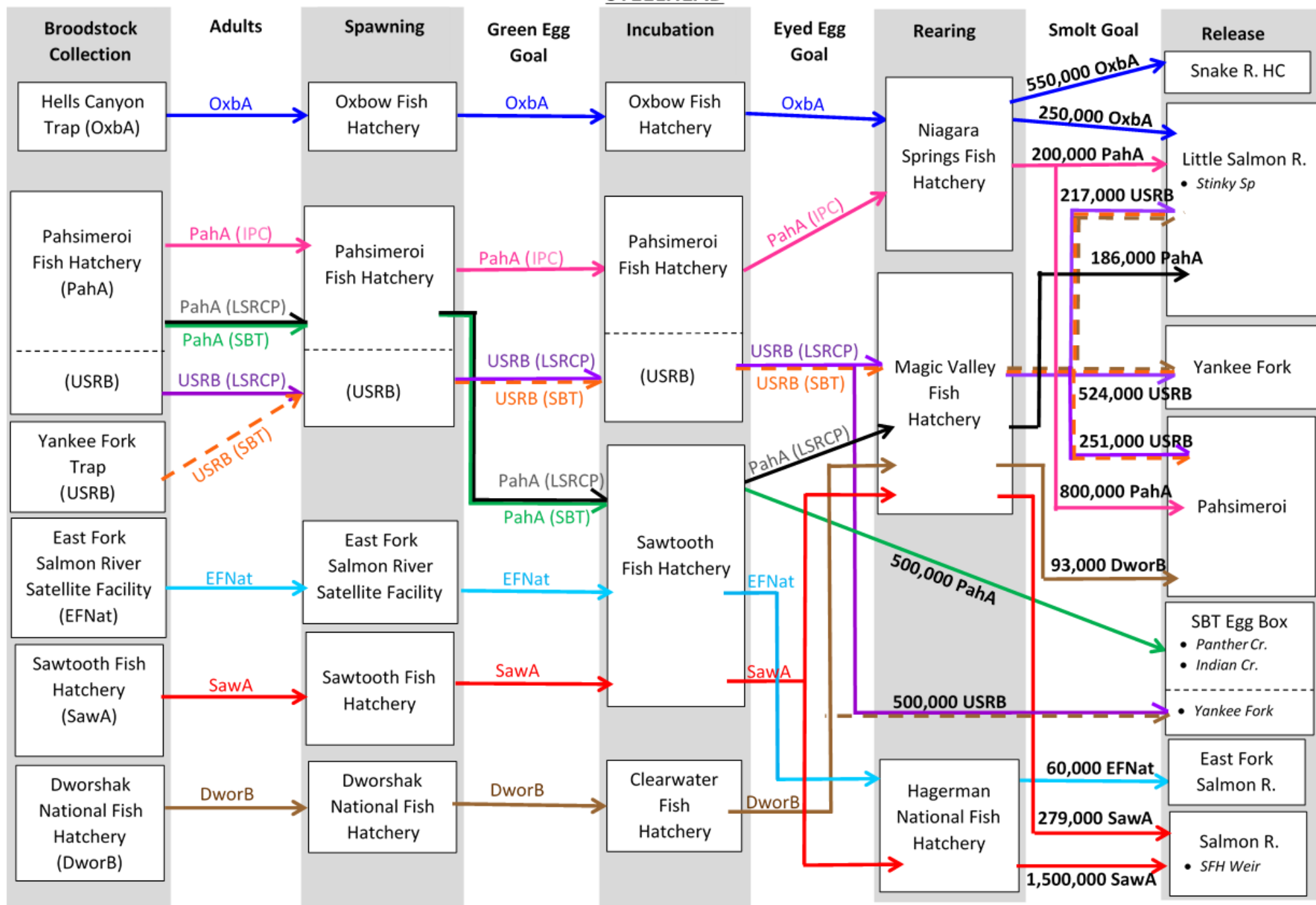


Figure 1.3. Fish and egg movements for Steelhead. Numbers reflect 2021 releases.

1.2. Releases in 2021 (Smolt BY 2020, Egg Box BY 2021)

1.2.1. Releases in 2021 (Smolt BY 2020, Egg Box BY 2021) – Totals

Table 1.2a. Steelhead Rearing Metrics for BY 2020 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	SawA	1,545,033	12/30/2020	1,396,333	1,410,000	4.5	0	N/A	4/1-4/27	1,392,000	4.5
HNFH	Sawtooth Weir (PRAS Eval)	SawA	102,106	12/30/2020	96,769	90,000	4.5	0	N/A	4/1-4/5	96,000	4.5
HNFH	E. Fork Salmon R. - Upper	EFNat	77,975	12/30/2020	69,801	60,000	4.5	0	N/A	4/23-4/27	69,000	4.5
Totals			1,725,114		1,562,903	1,560,000		-			1,557,000	
MVFH	Little Salmon R. - Stinky Sp.	PahA	227,073	1/1/2021	191,580	186,000	4.5	14,750	Oakley Res (9/22)	4/16-4/21	188,000	4.5
MVFH	Pahsimeroi Weir ¹	USRB	286,137	1/1/2021	253,924	248,000	4.5	9,180	Oakley Res (9/22)	4/6-4/12	249,000	4.5
MVFH	Pahsimeroi Weir	DworB	116,855	1/1/2021	95,354	93,000	4.5	11,860	Oakley Res (9/22)	4/5-4/6	93,500	4.5
MVFH	Sawtooth Weir	SawA	327,961	1/1/2021	287,243	279,000	4.5	20,140	Oakley Res (9/22)	4/22-4/26	281,500	4.5
MVFH	Yankee Fork ¹	USRB/DworB	713,532	1/1/2021	540,217	527,000	4.5	86,800	Salm Falls Cr/Oakley Res (9/22)	4/27-5/5	529,000	4.5
MVFH	Little Salmon - Stinky Sp.	USRB/DworB	259,958	1/1/2021	125,609	217,000	4.5	10,470	Oakley Res (9/22)	4/13-4/15	123,000	4.5
Totals			1,931,516		1,493,927	1,550,000		153,200			1,464,000	
NSFH	Pahsimeroi Weir	PahA	978,524	1/8/2021	756,092	800,000	4.5	4,615	Salmon Falls Creek Reservoir (9/16)	3/29-4/9	755,000	4.5
NSFH	Little Salmon R. - Stinky Sp.	PahA	268,222	1/8/2021	207,464	200,000	4.5			4/12-4/16	207,000	4.5
NSFH	Little Salmon R. - Stinky Sp.	OxbA	311,074	1/8/2021	266,728	250,000	4.5			4/19-4/23	266,500	4.5
NSFH	Snake R. Hells Canyon	OxbA	608,003	1-8-2021	555,610	550,000	4.5			3/15-3/26	552,000	4.5
Totals			2,165,823		1,785,894	1,800,000		4,615			1,780,500	
Grand Total			5,822,453		4,842,724	4,910,000		157,815			4,801,500	

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.

Table 1.2b. BY 2020 Steelhead Inventory to Date by Mark Type in 2021

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	SawA	12/30/2020	1,396,333	1,396,333	-	-	-	8,699	2,600	6,100		
HNFH	Sawtooth Weir (PRAS Eval)	SawA	12/30/2020	96,769	96,769	0	-	-	2,993		3,000		
HNFH	E. Fork Salmon R. - Upper	EFNat	12/30/2020	69,801	-	69,801	-	-	8,597	2,600	6,000		
Totals				1,562,903	1,493,102	69,801	-	-	20,289	5,200	15,100	-	-
MVFH	Little Salmon R. - Stinky Sp.	PahA	1/1/2021	191,580	191,580				2,199	2,200			
MVFH	Pahsimeroi Weir ¹	USRB	1/1/2021	253,924			253,924		8,301	2,400	5,901		
MVFH	Pahsimeroi Weir	DworB	1/1/2021	95,354			95,354		3,097	1,000	2,100		
MVFH	Sawtooth Weir	SawA	1/1/2021	287,243	287,243				5,699	5,700			
MVFH	Yankee Fork ¹	USRB/DworB	1/1/2021	540,217	413,061		127,156		13,293	5,300	8,000		
MVFH	Little Salmon - Stinky Sp.	USRB/DworB	1/1/2021	125,609	125,609				2,196	2,200			
Totals				1,493,927	1,017,493	-	476,434	-	34,785	18,800	16,001	-	-
NSFH	Pahsimeroi Weir	PahA	1/8/2021	756,092	756,092				8,998	3,000		6,000	
NSFH	Little Salmon R. - Stinky Sp.	PahA	1/8/2021	207,464	207,464				2,300	1,800		500	
NSFH	Little Salmon R. - Stinky Sp.	OxbA	1/8/2021	266,728	266,728				2,798	2,300		500	
NSFH	Snake R. Hells Canyon	OxbA	1/8/2021	555,610	555,610				8,596	2,600		6,000	
Totals				1,785,894	1,785,894	-	-	-	22,692	9,700	-	13,000	-
Grand Total				4,842,724	4,296,489	69,801	476,434	-	77,766	33,700	31,101	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

See **Table 1.1** for BY 2021 Steelhead Egg box transfers in 2021

1.2.2. Releases in 2021 (Smolt BY 2020, Egg Box BY 2021) - 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. Were you below goal? Was your size at release different than the 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 2021		Changes/Conditions that Occurred 2020-Early 2021		
	Release Target Smolt BY20, Egg BY21	Transport/Release Smolt BY20, Egg BY21	Fish Feeding BY20	Fish/Egg Health BY20	Marking BY20
<i>Niagara Springs Fish Hatchery (SOP Section 1.2)</i>					
Pahsimeroi Weir (PahA)	NC	Below release goal due to high mortality from IHN virus	NC	IHN virus	Surplus marked into LSR for shortage
L. Salmon R. Stinky Springs (PahA/OxbA)	NC	Above release goal; Marked excess PahA into L. Salmon R. Stinky Springs for shortage Increased BY 21 egg request for PAHA (3,000 eggs/vat)/OxbA (2,000 eggs/vat)	NC	Aquaflor Treatment; CWD	Marked Surplus PahA LSR for shortage
Snake R. Hells Canyon (OxbA)	NC	NC	NC	Aquaflor Treatment; CWD	NC
<i>Pahsimeroi Fish Hatchery - Egg transfers to SBT - BY 2021 (SOP Sections 1.4 and 1.10)</i>					
Yankee Fork (USRB)	NC	NC			
<i>Sawtooth Fish Hatchery - Egg transfers to SBT - BY 2021 (SOP Sections 1.4, 1.7 and 1.10)</i>					
Indian Creek (PahA)	NC	NC			
Panther Creek (PahA)	NC	NC			

Release Location	Plan for 2021		Changes/Conditions that Occurred 2020-Early 2021		
	Release Target Smolt BY20, Egg BY21	Transport/Release Smolt BY20, Egg BY21	Fish Feeding BY20	Fish/Egg Health BY20	Marking BY20
<i>Hagerman National Fish Hatchery (SOP Section 1.5)</i>					
East Fork Weir (EFnat)	NC	Currently 9,000 above release goal of 60,000	NC	NC	NC
Sawtooth Weir (SawA)	NC	NC	NC	PRAS Aquaflor Treatment CWD	NC
<i>Magic Valley Fish Hatchery (SOP Section 1.6)</i>					
Sawtooth Weir (SawA)	NC	BY20 SawA supplemented with PahA to meet release goal Discussions on the PRAS after BY21 will occur between LSRCP/IDFG this coming year.	NC		Postponed marking due to late arrival of eyed eggs
L. Salmon R. Stinky Springs (PahA)	NC	NC	NC		Postponed a portion of marking due to late arrival of eyed eggs
Pahsimeroi Weir (USRB)	NC	NC	NC		NC
Pahsimeroi Weir (DworB)	NC	NC	NC		NC
Yankee Fork (USRB/DworB)	NC	NC	NC	Vat 12 Aquaflor Treatment; CWD	NC
L. Salmon R. Stinky Springs (USRB/DworB)	NC	Below BY20 release goal. IHN U-clade detection required depopulation of 94,650 parr	NC	IHN U-Clade detected following mark to outside raceways isolated to indoor Vat 7	NC

1.3. Trap Operations and Production Planning for 2021 (Smolt BY 2021, Egg Box BY 2021)

1.3.1. Trap Operations and Production Planning for 2021 (Smolt BY 2021, Egg Box BY 2021) – TOTALS

Table 1.3a. Steelhead Projected BY 2021 Smolt Production Goals for Release in 2022

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	248,000
	Pahsimeroi Weir	DworB	93,000
	Yankee Fork	USRB (DworB)	527,000
	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 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 ⁶	Trapping period		Trapping Goal ¹			
								Females	Males ⁵				Total	Season	Dates	Female	Male	Total
SFH	SawA	HNFH	Sawtooth Weir	1,697,405	SawA	HNFH	5,150	330	330	SawA	HNFH	4,753	2021	3/29-4/30/21	330	330	660	
			Sawtooth Weir (RAS Eval)	108,345			5,150	22	22				2021	3/29-4/30-21	22	22	44	
		MVFN	Sawtooth Weir	367,857			5,150	72	72				2021	3/29-4/30/21	72	72	144	
EFSR Sat.	EFNat	HNFH	E. Fork Salmon R. - Upper	82,490	EFNat	HNFH	5,600	15	15	EFNat	HNFH	166	2021	3/29-5/20/21	15	15	30	
PFH	PahA	MVFN	Little Salmon R. - Stinky Sp.	261,905	PahA	MVFN	5,500	48	48	PahA	MVFN	3,851	2021	2/15-5/7/2021	48	48	96	
			Pahsimeroi Weir	1,051,374			5,500	192	192				2021		192	192	384	
		NSFN	Little Salmon R. - Stinky Sp.	262,843		5,500	48	48	2021		48		48		96			
		SFH	SBT Egg Box-Panther Creek	479,826		5,500	88	88	2021		88		88		176			
			SBT Egg Box-Indian Creek	119,956		5,500	22	22	2021		22		22		44			
	USRB (DworB) ³	MVFN	PFH/CFH ²	Pahsimeroi Weir	328,042	USRB (DworB)	MVFN	6,200	53	35	USRB (DworB)	MVFN	378	2021	2/15-5/7/2021	56	37	93
				Yankee Fork	697,090			6,200	113	75				2021	2/15-5/7/2021	119	79	199
				Little Salmon - Stinky Sp.	292,778			6,200	48	32				2021	2/15-5/7/2021	51	34	85
SBT Egg Box-Yankee Fork				611,111	6,200			99	99	2021				2/15-5/7/2021	104	104	209	
OFH	OxbA	NSFN	Little Salmon R. - Stinky Sp.	388,151	OxbA	NSFN	5,500	71	71	OxbA	NSFN	3,265	2020	11/2-11/24/2020	303	303	606	
			Snake R. Hells Canyon	853,931			5,500	156	156				2021	4/7/2021				
DNFH	DworB	MVFN	Pahsimeroi Weir	144,983	DworB ⁴	MVFN	6,681	22	11	DworB	MVFN	5,650			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 acutally the # of Males collected while getting the # of Females needed, based on % of F in Brodstock

⁶ Projected Return to LGD includes only 2-ocean and 3-ocean adults for USRB/DWOR.

Table 1.3c. BY2021 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 2020	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 2021	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	32	32	0	0	0	22
	5-Apr	76	378	40	129	78	104	139	172	0	0	0	22
	12-Apr	0	378	77	206	130	233	126	298	0	0	0	22
	19-Apr	0	378	77	283	78	311	55	353	3	3	0	22
	26-Apr	0	378	76	359	19	329	71	424	7	10	0	22
	3-May	0	378	39	398	0	329	0	424	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	424	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 2021 may require up to 300 DWOR females spawned.

Table 1.3d. Steelhead Spawning for BY 2022 - 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 Total	Trapping period		Trapping Goal ¹		
								Females	Males ²				Season	Dates	Female	Male	Total
OFH	OxbA	NSFH	Little Salmon R. - Stinky Sp.	388,151	OxbA	NSFH	5,500	71	71	OxbA	NSFH		2021	11/1-11/24/21	303	303	606
			Snake R. Hells Canyon	853,931			5,500	156	156								

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. BY2022 Steelhead adult female broodstock acquisition schedule for hatchery programs.

Season	Date	Hells Canyon Trap		Proportion of brood acquisition over season
		OxbA ¹		
		Wkly	Cum	
Fall 2021	Oct	0	0	0
	Nov	303	303	1
	Dec	0	303	0

	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 2021 (Smolt BY 2021, Egg Box BY 2021) – 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 2021 (BY 2021)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
<i>Hells Canyon Trap/Oxbow Hatchery (Fall 2020-Spring 2021) (SOP Section 1.3)</i>					
Niagara Springs (OxbA)	NC	NC	NC	Eggs will be incubated without a chiller thus requiring additional shipments to Niagara (11 total). Eggs will be received a week earlier than normal.	NC
<i>Pahsimeroi Weir (SOP Section 1.4)</i>					
Niagara Springs (PahA)	NC	NC	NC	NC	NC
Magic Valley (PahA)	NC	NC	NC	NC	NC
SBT Egg Box (PahA)	NC	NC	NC	NC	NC
SBT Egg Box (USRB)	NC	NC	NC	Adult Males will be injected with liquid Ovaplant vs. pelleted Ovaplant used in previous brood years.	NC
Magic Valley (USRB)	NC	NC	NC	Adult Males will be injected with liquid Ovaplant vs. pelleted Ovaplant used in previous brood years.	NC
<i>Sawtooth and East Fork Weirs (SOP Sections 1.7 and 1.8)</i>					
Hagerman National (EFNat)	NC	NC	NC	NC	NC

Rearing Location	Plan for 2021 (BY 2021)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
Hagerman National (SawA)	NC	NC	NC	NC	NC
Magic Valley (Saw)	NC	NC	NC	NC	NC
<i>Dworshak National Fish Hatchery Ladder (Fall 2020-Spring 2021) (SOP Section 1.9)</i>					
Magic Valley (DworB)					

1.4. Marking and Rearing Plan for 2021 (Smolt BY 2021)

1.4.1. Marking and Rearing Plan for 2021 (Smolt BY 2021) – TOTALS

Table 1.4a. Steelhead Projected marking of BY 2021 Production for release in 2022

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 ¹	SawA	1,410,000					8,700	2,600	6,100	
	Sawtooth Weir (RAS Eval)	SawA	90,000					3,000		3,000	
	E. Fork Salmon R. - Upper	EFNat	60,000					8,600	2,600	6,000	
Totals			1,560,000	-	-	-	-	20,300	5,200	15,100	-
MVFH	Sawtooth Weir	SawA	279,000	288,000				5,700	5,700		
	Little Salmon R. - Stinky Sp.	PahA	186,000	192,000				2,200	2,200		
	Pahsimeroi Weir	USRB	248,000			256,000		7,200	2,100	5,100	
	Pahsimeroi Weir	DworB	93,000			96,000		4,200	1,300	2,900	
	Yankee Fork	USRB (DworB)	527,000	416,000		128,000		13,300	5,300	8,000	
	Little Salmon - Stinky Sp.	USRB	217,000	224,000				2,200	2,200		
Totals			1,550,000	1,120,000	-	480,000	-	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	2,920,000	-	480,000	-	77,800	33,700	31,100	13,000

¹ PIT tagging subject to change based on resumption of PRAS evaluation.

1.4.2. Marking and Rearing Plan for 2021 (Smolt BY 2021) – 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 2021 (BY 2021)			
	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 structure in use	Surplus PahA Pahsimeroi River Release marked into LSR. OxbA Snake River Hells Canyon/ OxbA LSR mixed PBT.
Snake R. Hells Canyon (OxbA)	NC	NC	New predator structure in use	NC
L. Salmon R. Stinky Springs (PahA)	NC	NC	New predator structure in use	Surplus PahA Pahsimeroi River release marked into LSR; Mixed PBT
Pahsimeroi Weir (PahA)	NC	NC	New Predator Structure in use	NC
<i>Hagerman National Fish Hatchery (SOP Section 1.5)</i>				
East Fork Weir (EFnat)	NC	NC	NC	NC
Sawtooth Weir (SawA)	NC	NC	NC	Current marking table (1.4a) does not include CWTs or PITs for PRAS evaluation. Depending on the outcome of discussions for BY21 PRAS evaluation, CWT and PITs are subject to change.
<i>Magic Valley Fish Hatchery (SOP Section 1.6)</i>				
Sawtooth Weir (SawA)	NC	NC	NC	NC

Release Location	Plan for 2021 (BY 2021)			
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking
L. Salmon R. Stinky Springs (PahA)	NC	NC	NC	NC
Pahsimeroi Weir (USRB)	NC	NC	NC	NC
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

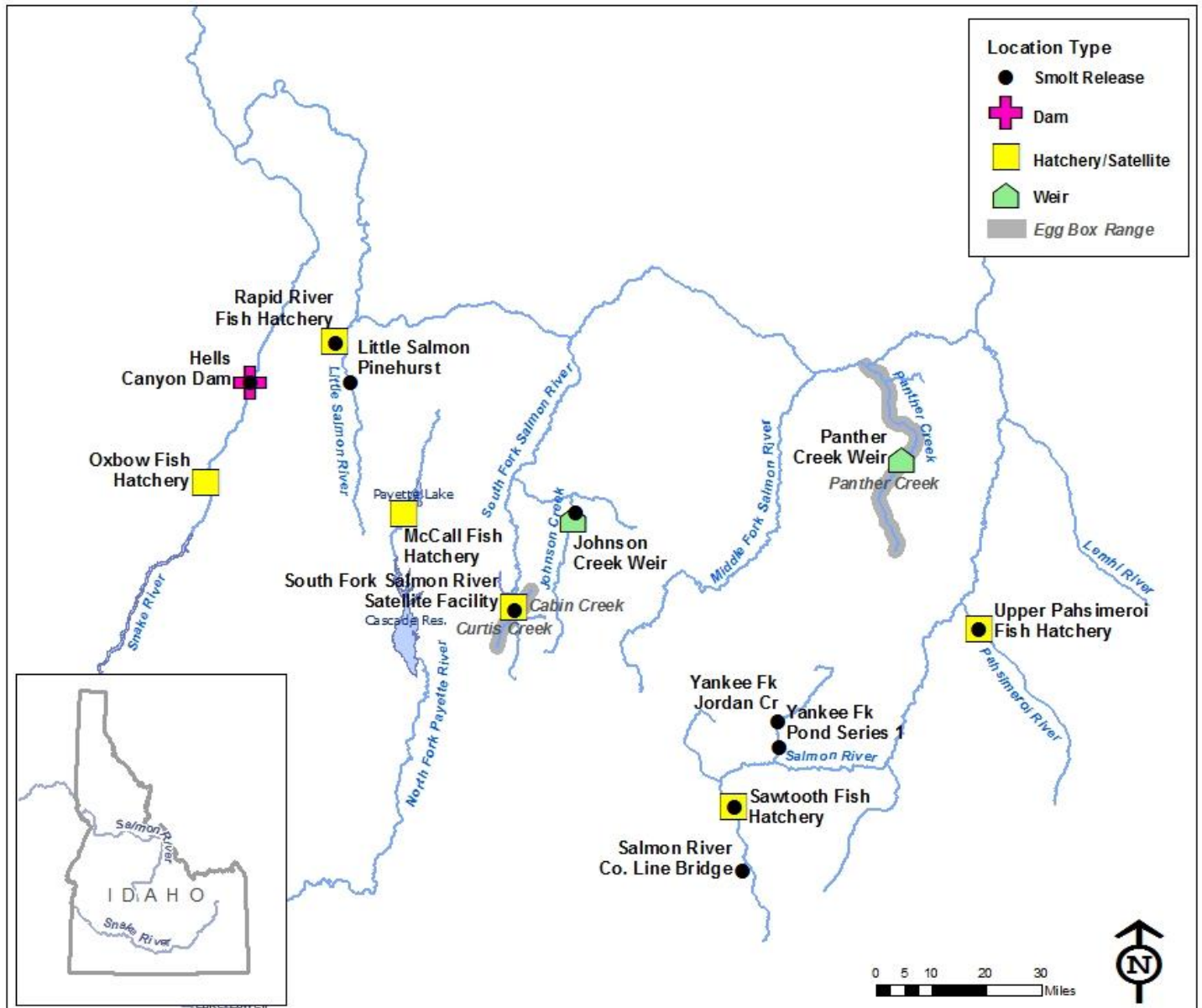


Figure 2.1. Spring/Summer Chinook salmon hatchery facilities and smolt release and egg box locations.

Table 2.1. Sp/Su Chinook Release Goals.

Smolts

Release Program	Release Site	Rearing Facility	Stock	BY2019 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 BY2021 Goal	Smolt BY2021 Release Goal
Egg Box Release						
SBT Eggbox	Curtis/Cabin Creek	McFH	SFSRSeg	344,372	300,000	NA
SBT Eggbox ¹	Panther Creek	PFH/Panther Cr.	PahSeg/PantherCr	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

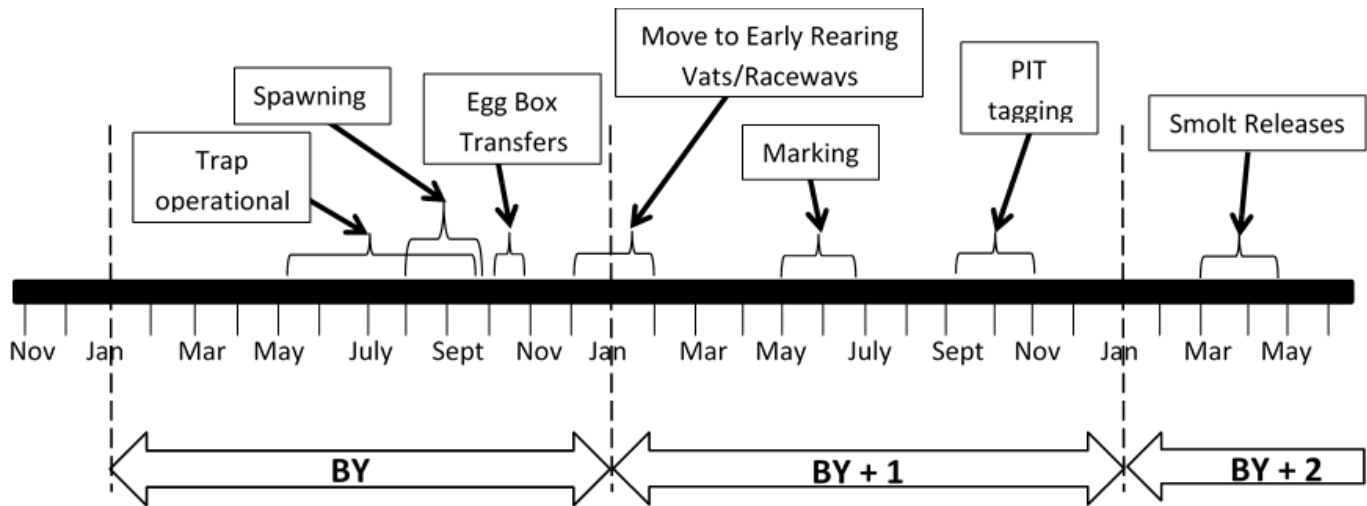


Figure 2.2. Timeline for Spring/Summer Chinook Production. Date ranges are shown to include all facilities' operations.

CHINOOK

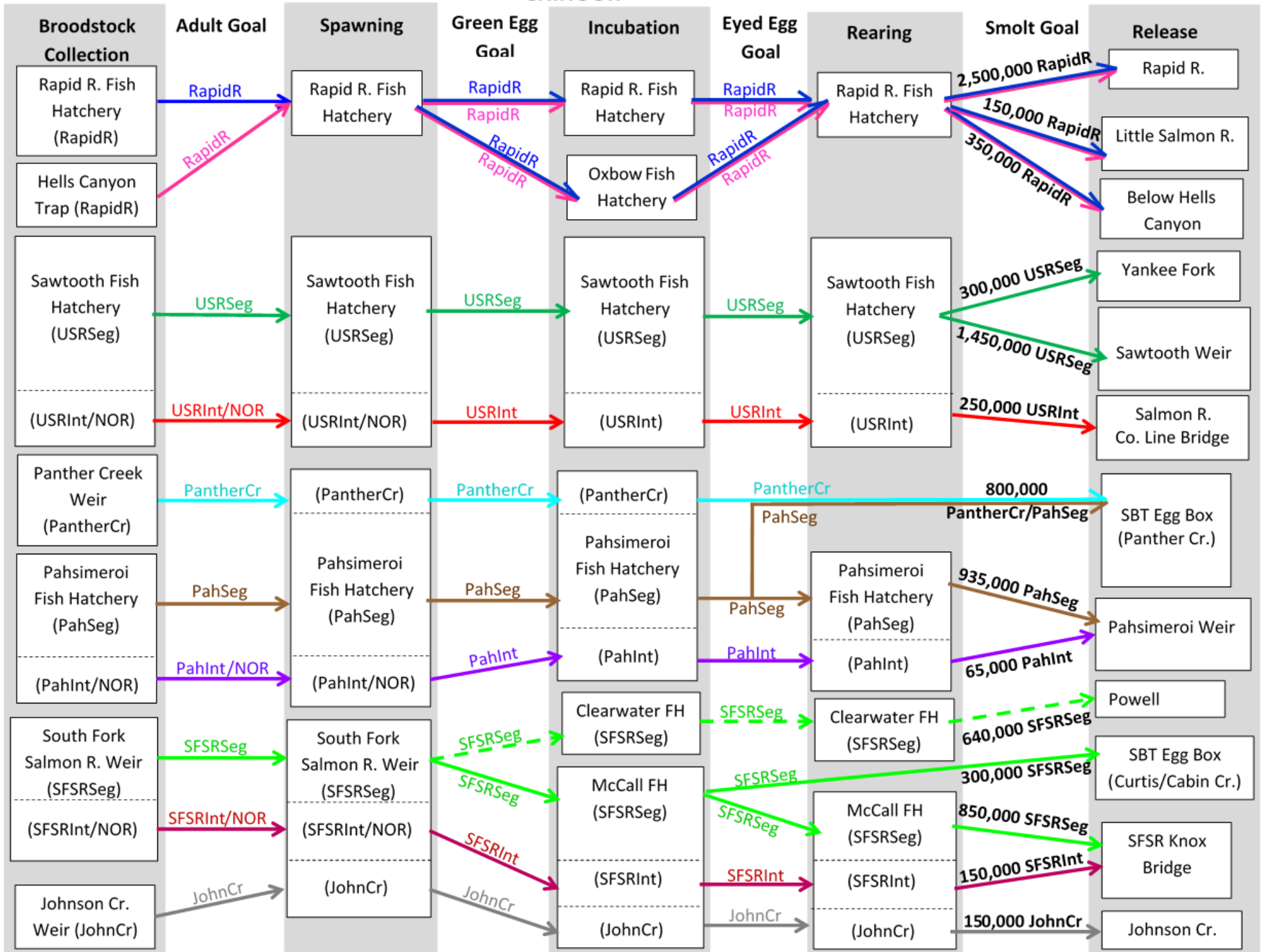


Figure 2.3. Fish and Egg movements for Sp and Su Chinook. Numbers reflect 2021 releases.

2.2. Releases in 2021 (Smolt BY 2019, Egg Box BY 2021)

2.2.1. Releases in 2021 (Smolt BY 2019, Egg Box BY 2021) – Totals

Table 2.2a. BY2019 SMOLTS - Sp/Su Chinook Salmon inventories by life stage, smolt release goals and projected releases in 2021.

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	3,428,421	1/31/2021	3,211,668	2,500,000	20	3/15-4/23/2021	2,500,000	19.0
	Little Salmon (@ Pinehurst)	RapidR				150,000	20	03/19/2021	200,000	20.0
	Hells Canyon	RapidR				350,000	20	3/15-18/2021	500,000	20.0
Total			3,428,421		3,211,668	3,000,000			3,200,000	
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	155,053	12/31/2020	152,387	250,000	18	4/6/21	152,250	18.0
	Sawtooth Weir -Segregated	USRSeg	1,141,137	12/31/2020	1,138,552	1,450,000	18	4/7-4/9/2021	1,138,000	18.0
	Yankee Fork	USRSeg	237,307	12/31/2020	236,290	300,000	18	4/13-4/14/2021	236,000	18.0
Total			1,533,497		1,527,229	2,000,000			1,526,250	
PFH	Pahsimeroi Weir - Integrated	PahInt	52,629	12/31/2020	44,819	65,000	15	4/15-4/21/2021	44,147	15.0
	Pahsimeroi Weir - Segregated	PahSeg	930,076	12/31/2020	833,187	935,000	15	4/15-4/21/2021	820,687	15.0
Total			982,705		878,006	1,000,000			864,834	
McFH	SFSR Knox Br. - Integrated	SFSRInt	162,402	12/31/2020	135,173	150,000	20	4/12-15/2021	135,038	25.0
	SFSR Knox Br. - Segregated	SFSRSeg	1,113,772	12/31/2020	938,064	850,000	18	4/12-15/2021	937,127	22.0
	Johnson Creek	Johnson Cr.	123,902	12/31/2020	100,395	150,000	24	4/6-7/2021	100,027	30.0
Total			1,400,076		1,173,632	1,150,000			1,172,192	
Grand Total			7,344,699		6,790,535	7,150,000			6,763,276	

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. BY2019 SMOLTS for release in 2021 - Sp/Su Chinook Salmon Inventory to Date by Mark Type in 2021

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	1/31/2021	3,200,000	3,080,000	120,000	-	-	51,992	31,992	0	20,000	0	0		
	Little Salmon (@ Pinehurst)	RapidR							-	-	-	0	0	0	0	0
	Hells Canyon	RapidR									-	0	0	0	0	0
Totals				3,200,000	3,080,000	120,000	-	-	51,992	31,992	-	20,000	-	-		
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	12/31/2020	152,357	-	-	152,357	-	1,000	0	0	0	1,000	0		
	Sawtooth Weir -Segregated	USRSeg	12/31/2020	1,138,552	1,019,221	119,331	-	-	18,900	5,700	13,200	0	0	0		
	Yankee Fork	USRSeg	12/31/2020	236,290	117,447	118,843	-	-	8,495	700	7,795	0	0	0		
Totals				1,527,199	1,136,668	238,174	152,357	-	28,395	6,400	20,995	-	1,000	-		
Pah	Pahsimeroi Weir - Integrated	PahInt	12/31/2020	44,819	-	-	44,819	-	-	0	0	0	0	0		
	Pahsimeroi Weir - Segregated	PahSeg	12/31/2020	833,187	714,274	118,913	-	-	21,397	6,400	0	14,997	0	0		
Totals				878,006	714,274	118,913	44,819	-	21,397	6,400	-	14,997	-	-		
McFH	SFSR Knox Br. - Integrated	SFSRInt	12/31/2020	135,038	-	-	135,038	-	25,994	25,994	0	0	0	0		
	SFSR Knox Br. - Segregated	SFSRSeg	12/31/2020	937,127	827,671	109,456	-	-	26,036	6,036	20,000	0	0	0		
	Johnson Creek	Johnson Cr.	12/31/2020	100,395	-	-	100,395	-	2,187	0	0	0	2,187	0		
Totals				1,172,560	827,671	109,456	235,433	-	54,217	32,030	20,000	-	2,187	-		
Grand Total				6,777,765	5,758,613	586,543	432,609	-	156,001	76,822	40,995	34,997	3,187	-		

See **Table 2.1** for BY 2021 Sp/Su Chinook salmon egg transfers to streamside egg boxes in 2021.

2.2.2. Releases in 2021 (Smolt BY 2019, Egg Outplants BY 2021) – Total

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”.

- 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 2021		Changes/Conditions that Occurred 2020-Early 2021		
	Release Target Smolt BY19, Egg BY21	Transport/Release Smolt BY19, Egg BY21	Fish Feeding BY19	Fish/Egg Health BY19	Marking BY19
<i>Rapid River Fish Hatchery (SOP Section 2.2)</i>					
Rapid River Hatchery (RapidR)	NC	NC	Aquaflor treatment coldwater disease H2O2 treatment saprolegniasis	NC	NC
Little Salmon R. (RapidR)	NC	200,000	Aquaflor treatment coldwater disease H2O2 treatment saprolegniasis	NC	NC
Hells Canyon (RapidR)	NC	500,000	Aquaflor treatment coldwater disease H2O2 treatment saprolegniasis	NC	NC
<i>McCall Fish Hatchery (SOP Sections 2.3, 2.4 and 2.9)</i>					
SFSR Knox Bridge (SFSRInt)	10% short of goal.	NC	NC	NC	1st Tag event delayed 2 weeks
SFSR Knox Bridge (SFSRSeg)	NC	NC	NC	NC	1st Tag event delayed 2 weeks
Johnson Cr. (JohnCr)	BY19 release of 100,000 smolts is 66% of goal of 150,000	NC. Plan to release week of April 5, 2021.	NC	NC	NC
Curtis/Cabin Cr. Egg Box (SFSRSeg)	Eggs may not be available	Eggs may not be available			

Location	Plan for 2021		Changes/Conditions that Occurred 2020-Early 2021		
	Release Target Smolt BY19, Egg BY21	Transport/Release Smolt BY19, Egg BY21	Fish Feeding BY19	Fish/Egg Health BY19	Marking BY19
<i>Pahsimeroi Fish Hatchery (SOP Section 2.5)</i>					
Pahsimeroi Weir Integrated (PahInt)	Projected release of 44,147 smolts: 68% of release goal of 65,000.	NC	NC	Confirmed BKD with associated mortality.	NC
Pahsimeroi Weir Segregated (PahSeg)	Projected release of 820,687 smolts: 88% of release goal of 935,000.	NC	NC	Confirmed BKD with associated mortality	NC
Panther Cr. Egg Box (PahSeg)	No surplus eggs anticipated from Pahsimeori stock.	Broodstock will be sourced from Panther Cr. and transported to PAH.			
<i>Sawtooth Fish Hatchery (SOP Sections 2.6 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	Projected release of 152,250 is 60.9% of the release goal.	NC	NC	NC	NC
Sawtooth Weir Segregated (USRSeg)	Projected release of 1,138,000 is 78.5% of the release goal.	NC	NC	NC	NC
Yankee Fork (USRSeg)	Projected release of 236,000 is 78.7% of target	NC	NC	NC	Total PITs were increased from 2,500 to 8,500 to estimate adult returns, estimate stray rates, and evaluate different release strategies.

2.3. Trap Operations and Production Planning for 2021 (Smolt BY 2021)

2.3.1. Trap Operations and Production Planning for 2021 (Smolt BY 2021) – TOTALS

Table 2.3a. BY 2021 Sp/Su Chinook Smolt Production Goals for Release in 2023.

Hatchery	Release Site	Stock	2023 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 2021 and Egg Transfers used for BY 2021 Smolt Production (Release in 2023).

Program	Release Location	Hatchery Egg Source	Stock	Green Egg Target	Eyed Egg BY2021 Goal	Smolt BY2021 Release Goal
Egg Box Release						
SBT Eggbox	Curtis/Cabin Creek	McFH	SFSRSeg	344,372	300,000	NA
SBT Eggbox ¹	Panther Creek	PAH/Panther Cr	Panther Cr.	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 stock sourced from Panther Creek and transferred to the Pahsimeroi Hatchery in 2021.

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. BY2021 SMOLTS -Chinook Spawning for BY 2021 - 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					Total				
						HORSeg ⁴		HORInt ⁵		NOR ⁶		LGD			Trap ¹		HORSeg ⁴		HORInt ⁵		NOR ⁶					
						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	4,055,676	3,682	1103	1103					8,999					999	999					1,998			
			Little Salmon															61	61							122
			Hells Canyon Trap																			140	140			
SFH	USRInt	SFH	Salmon R. - Co. Line Br. - Integrated	307,821	4,500			15	15	20	20		50	610	32	99			16	16	20	20	72			
	USRSeg	SFH	Sawtooth Weir - Seg	1,760,671	4,300	410	410					1,913					423	423					846			
			Yankee Fork	364,277	4,300	85	85						388					88	88					176		
PFH	PahInt	PFH	Pahsimeroi - Int	80,033	4,500			2	2	16	16		41	153	33	123			3	3	18	18	42			
	PahSeg	PFH	Pahsimeroi - Seg	1,266,376	4,500	282	282					258					332	332					664			
			SBT Eggbox - Panther Cr. ²			TBD	TBD											TBD	TBD					0		
SFSR	SFSRInt	McFH	SFSR - Int ⁷	202,572	3,800			11	11	41	41		265	328	181	224			12	12	45	45	114			
	SFSRSeg	McFH	SFSR - Seg ⁷	1,262,699	3,800	333	333					2,404					370	370					740			
			SBT Eggbox - Curtis/Cabin Cr. ⁷	344,372	3,800	91	91										101	101					203			
			Clearwater Su Chinook ²	770,891	3,800	203	203										214	214					428			
			JohnCr	McFH	Johnson Creek	212,523	4,500					48	48			424							57	57	115	

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

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.

³ Broodstock trapping need is dictated by number of females needed

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

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

⁶ NOR: Adult Natural Origin fish

⁷ After fulfilling brood stock needs for integrated smolt 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. BY2021 - 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	44	0	0	0	0	0	0	0	0	0	0
23-May	99	0	0	0	0	0	0	0	0	0	0
30-May	189	0	0	0	0	0	0	0	0	0	0
6-Jun	332	0	0	0	0	0	0	0	0	0	0
13-Jun	543	40	4	3	2	0	4	6	0	0	3
20-Jun	923	122	8	10	51	0	11	63	0	0	6
27-Jun	1,392	306	12	18	200	0	19	157	2	12	14
4-Jul	1,855	550	16	24	336	0	23	315	7	38	31
11-Jul	2,112	694	20	28	430	0	25	472	11	61	46
18-Jul	2,225	784	24	31	490	0	28	685	15	73	53
25-Jul	2,295	846	24	33	501	0	28	756	17	79	59
1-Aug	2,360	868	24	37	533	0	28	883	20	86	61
8-Aug	2,377	877	24	38	560	0	31	1008	20	88	73
15-Aug	2,389	918	24	40	574	0	32	1134	22	88	90
22-Aug	2,396	979	28	40	592	0	32	1232	24	90	104
29-Aug	2,400	1010	32	40	599	0	33	1261	24	90	111
5-Sep	2,400	1021	32	40	615	0	36	1370	24	90	114
12-Sep	2,400	1021	32	40	638	0	36	1370	24	90	114
19-Sep	2,400	1021	32	40	655	0	36	1370	24	90	114
26-Sep	2,400	1021	32	40	664	0	36	1370	24	90	114
Total	2,400	1021	32	40	664	6	36	1370	24	90	114
Forecast	11,167	1,913	73	610	393	60	153	2,404	265	328	

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 2021 (Smolts BY 2021) – NARRATIVE

Discuss 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 2021 (BY 2021)				
	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
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	Males and females will now be separated upon arrival and ponded separately.	NC	Some males will be injected with Ovaplant. Adult females retained for brood stock will be treated with injectable erythromycin.	Ovaplant injected males will be taken to landfill. All others will be rendered.

Juvenile/Egg Release Location	Plan for 2021 (BY 2021)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
Pahsimeroi Weir Segregated (PahSeg)	NC	Males and females will now be separated upon arrival and ponded separately.	NC	Some males will be injected with Ovaplant. Adult females retained for brood stock will be intreated with injectable erythromycin.	Ovaplant injected males will be taken to landfill. All others will be rendered.
SBT Egg Box - Panther Creek (PahSeg)	NC	Broodstock sourced from Panther Creek and transported to PAH	NC	Eggs will be obtained solely from Panther Creek broodstock.	NC
<i>Sawtooth Fish Hatchery (SOP Sections 2.6, 2.7 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	NC	Will try different ladder configurations to increase trapping efficiency	NC	NC	NC
Sawtooth Weir Segregated (USRSeg)	NC	Will try different ladder configurations to increase trapping efficiency	NC	NC	NC
Yankee Fork (USRSeg)	NC	Will try different ladder configurations to increase trapping efficiency	NC	NC	NC

2.4. Early Rearing and Marking Plan for 2021 (Smolt BY 2020)

2.4.1. Early Rearing and Marking Plan for 2021 (Smolt BY 2020) – TOTALS

Table 2.4a. Sp/Su Chinook Projected Marking of BY 2020 juveniles to be marked in 2021 (released in 2022).

Hatchery	Release Site	Stock	Likely Marking Date(s)	Release Goals for 2022	Inventory to Date		Projected Release Number	Projected Marking				Total # Tags	PIT Tags			
					Date	Number		Adipose Fin Clip		No Clip			Funding Source			
								No CWT	CWT	CWT	No CWT		CSS	LSRCP	IPC	BPA
RRFH	Rapid River Hatchery	RapidR	6/7-6/25	2,500,000	1/31/2021	3,524,821	2,500,000	3,404,821	120,000	-	-	52,000	32,000	-	20,000	-
	Little Salmon	RapidR		150,000			284,000		-	-	-	-	-	-	-	
	Hells Canyon	RapidR		350,000			600,000		-	-	-	-	-	-	-	
Totals				3,000,000		3,524,821	3,384,000	3,404,821	120,000	-	-	52,000	32,000	-	20,000	-
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	5/28-6/4	250,000	12/31/2020	201,561	187,450	-	-	187,450	-	1,000	-	-	-	1,000
	Sawtooth Weir - Segregated	USRSeg	5/28-6/4	1,450,000	12/31/2020	1,093,696	1,017,140	897,140	120,000	-	-	18,900	5,700	13,200	-	-
	Yankee Fork	USRSeg	5/28-6/4	300,000	12/31/2020	328,010	305,000	185,000	120,000	-	-	8,500	700	7,800	-	-
	Hells Canyon Dam ¹	RapidR	5/28-6/4	-	12/31/2020	337,537	313,900	313,900	-	-	-	2,000	-	2,000	-	-
Totals				2,000,000		1,960,804	1,823,490	1,396,040	240,000	187,450	-	30,400	6,400	23,000	-	1,000
PFH	Pahsimeroi Weir - Integrated	PahInt	5/10-5/14	65,000	12/31/2020	64,973	63,398	-	-	63,878	-	-	-	-	-	-
	Pahsimeroi Weir - Segregated	PahSeg	5/10-5/14	935,000	12/31/2020	439,348	425,464	311,943	120,000	-	-	21,400	6,400	-	15,000	-
Totals				1,000,000		504,321	488,862	311,943	120,000	63,878	-	21,400	6,400	-	15,000	-
McFH	SFSR Knox Br. - Integrated	SFSRInt	6/22-7/15	150,000	12/31/2020	168,123	155,381	-	-	155,381	-	26,000	26,000	-	-	-
	SFSR Knox Br. - Segregated	SFSRSeg	6/22-7/15	850,000	12/31/2020	736,471	674,970	554,970	120,000	-	-	26,000	6,000	20,000	-	-
	Johnson Creek	JohnCr	6/22-7/15	150,000	12/31/2020	150,971	139,273	-	-	139,273	-	2,100	-	-	-	2,100
Totals				1,150,000		1,055,565	969,624	554,970	120,000	294,654	-	54,100	32,000	20,000	-	2,100
Grand Totals				7,150,000		7,045,511	6,665,976	5,667,774	600,000	545,982	-	157,900	76,800	43,000	35,000	3,100

¹ Surplus Rapid River stock eggs were reared at SFH to be released in 2022 at Hells Canyon Dam.

2.4.2. Early Rearing and Marking Plan for 2021 (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”.

- 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 2021 (BY 2020)				
	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	284,000
Hells Canyon (RapidR)	NC	NC	NC	NC	600,000
<i>McCall Fish Hatchery (SOP Section 2.3 and 2.4)</i>					
Johnson Cr. (JohnCr)	NC	NC	NC	NC	Projected release will be slightly below target of 150,000.
Knox Bridge Integrated (SFSRInt)	NC	NC	NC	NC	10% Short of release goal-Low fecundity and low EU from NOR and INT Adults in '19.
Knox Bridge Segregated (SFSRSeg)	NC	NC	NC	NC	NC
<i>Pahsimeroi Fish Hatchery (SOP Section 2.5)</i>					
Pahsimeroi Ponds Integrated (PahInt)	NC	NC	NC	NC	Projected release of 63,398 smolts is 98% of 65,000 release goal.

Release Location	Plan for 2021 (BY 2020)				
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking	Meets Release Target
Pahsimeroi Ponds Segregated (PahSeg)	NC	NC	NC	NC	Projected release of 425,464 smolts is 46% of 935,000 release goal due to low segregated origin returns.
<i>Sawtooth Fish Hatchery (SOP Sections 2.6 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	NC	NC	NC	NC	Projected release of 187,450 is ~25% short of release goal due to low natural adult returns.
Sawtooth Weir Segregated (USRSeg)	NC	NC	NC	NC	Projected release of 1,017,140 is ~ 30% short of release goal due to low adult returns.
Yankee Fork (USRSeg)	NC	NC	NC	NC	NC
Hells Canyon Dam (RapidR)	NC	NC	NC	NC	These are fish in excess of broodstock needs and have no release target. Pahsimeroi Hatchery trapping goals were not met in 2020. This shortage provided the opportunity to rear excess eggs taken at Rapid River at Sawtooth Hatchery for release at Hells Canyon.

3. Fall Chinook

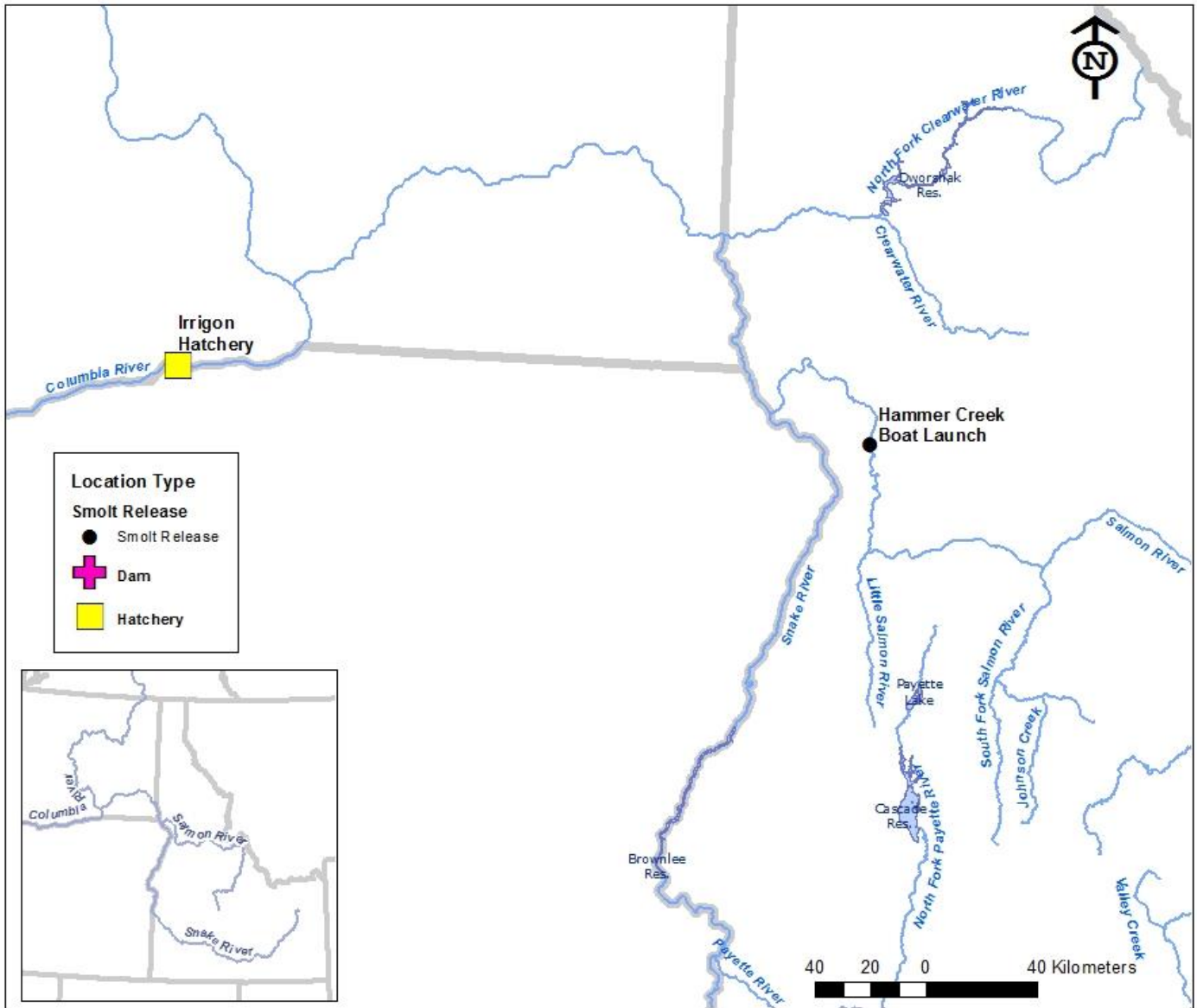


Figure 3.1. Fall Chinook Salmon facilities and smolt release locations.

Table 3.1. Fall Chinook Release Goals.

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

3.1. Releases in 2021 (Sub-Yearling BY 2020)

3.1.1. Releases in 2021 (Sub-Yearling BY 2020) – Totals

Table 3.2a. BY2020 Fall Chinook Sub-yearling Marking and Releases in 2021.

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	1,000,000	1,000,000		200,000		800,000	4,500

3.1.2. Releases in 2021 (Sub-Yearling 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 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 2021 (Sub-Yearling BY 2021)

Refer to Lyons Ferry AOP

3.3. Marking and Rearing Plan for 2021 (Sub-Yearling BY 2020)

Refer to Lyons Ferry AOP

4. Sockeye

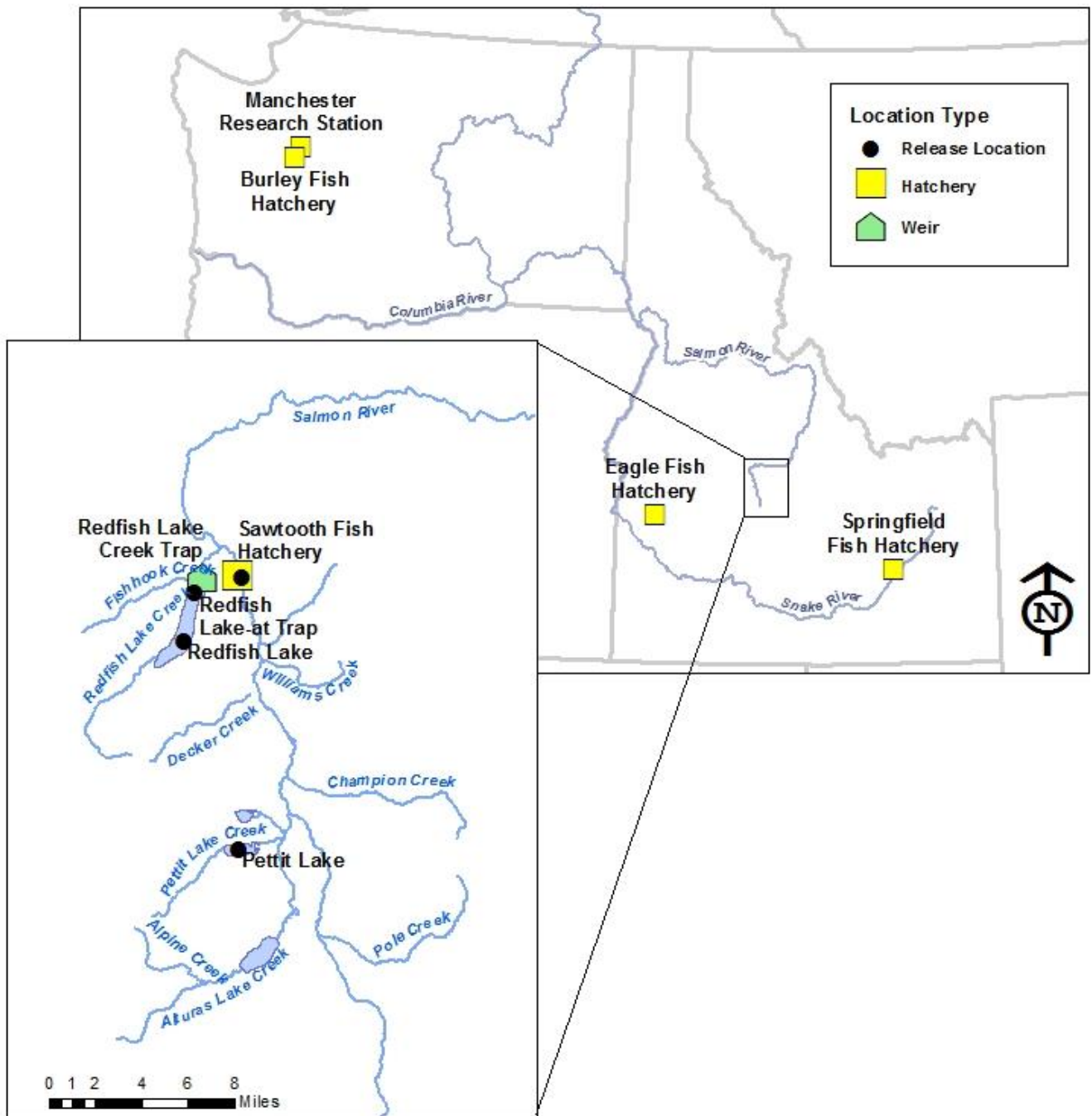


Figure 4.1. Sockeye salmon traps, hatchery facilities, and smolt and adult release locations.

Table 4.1. Sockeye 2021 Release Goals.

Rearing Facility	Release Site	Parent Stock	2021 Smolt Release Goal (BY 2019)
Springfield	Redfish Lake Cr. ¹	Snake R.	1,000,000
Grand Total			1,000,000

Rearing Facility	Release Site	Parent Stock	Brood Year	2021 Captive-Reared Minimum Adult Release Goal ²
NOAA - Burley Creek	Redfish Lake	Snake R.	2016	-
	Redfish Lake	Snake R.	2017	50
	Redfish Lake	Snake R.	2018	100
	Pettit Lake	Snake R.	2018	100
Total				250
Eagle Fish Hatchery	Redfish Lake	Snake R.	2017	-
	Redfish Lake	Snake R.	2018	100
Total				100
Grand Total				350

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

² The 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

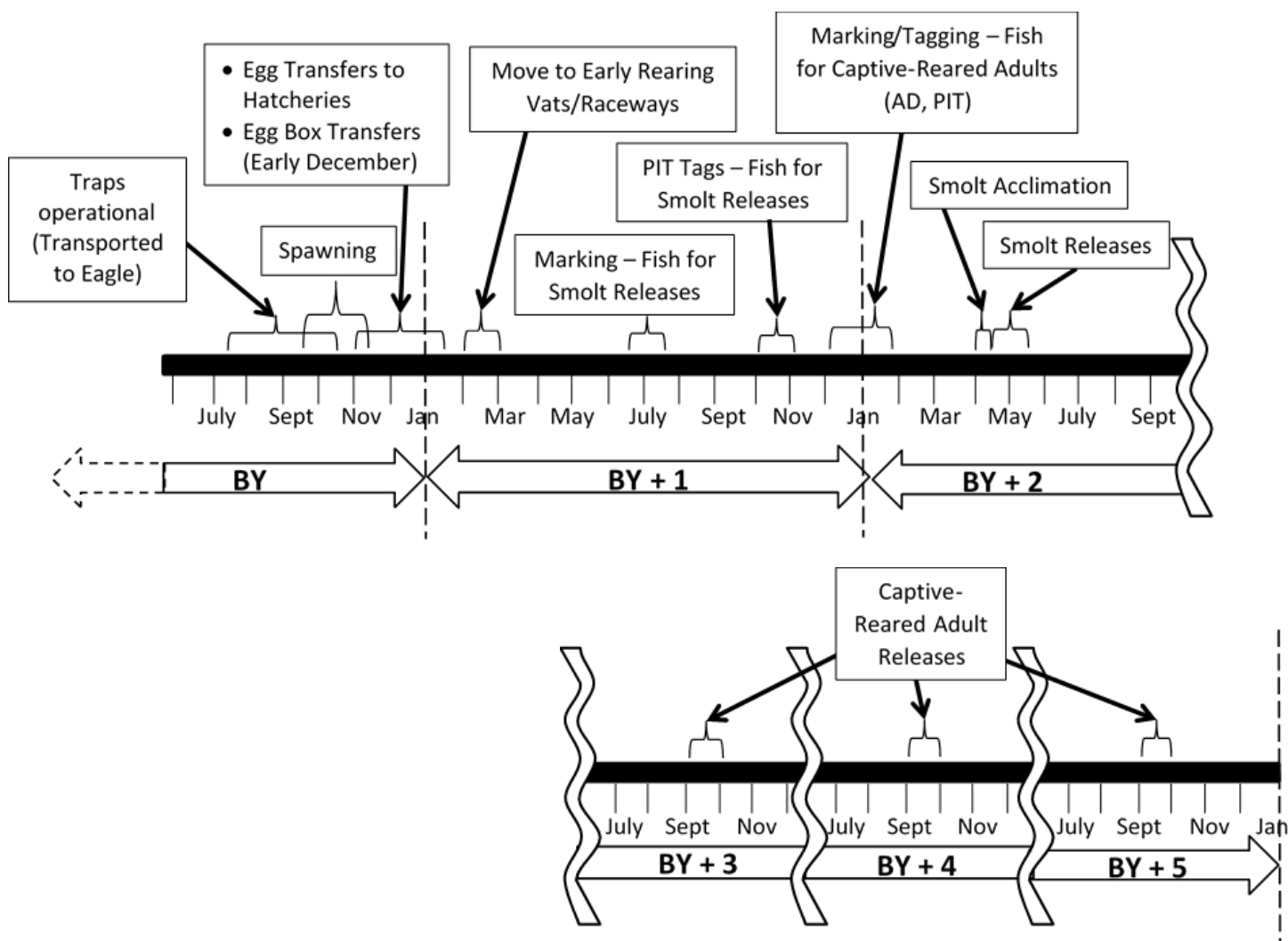


Figure 4.2. Timeline for Sockeye Salmon production. Date ranges are shown to include all facilities' operations.

Sockeye

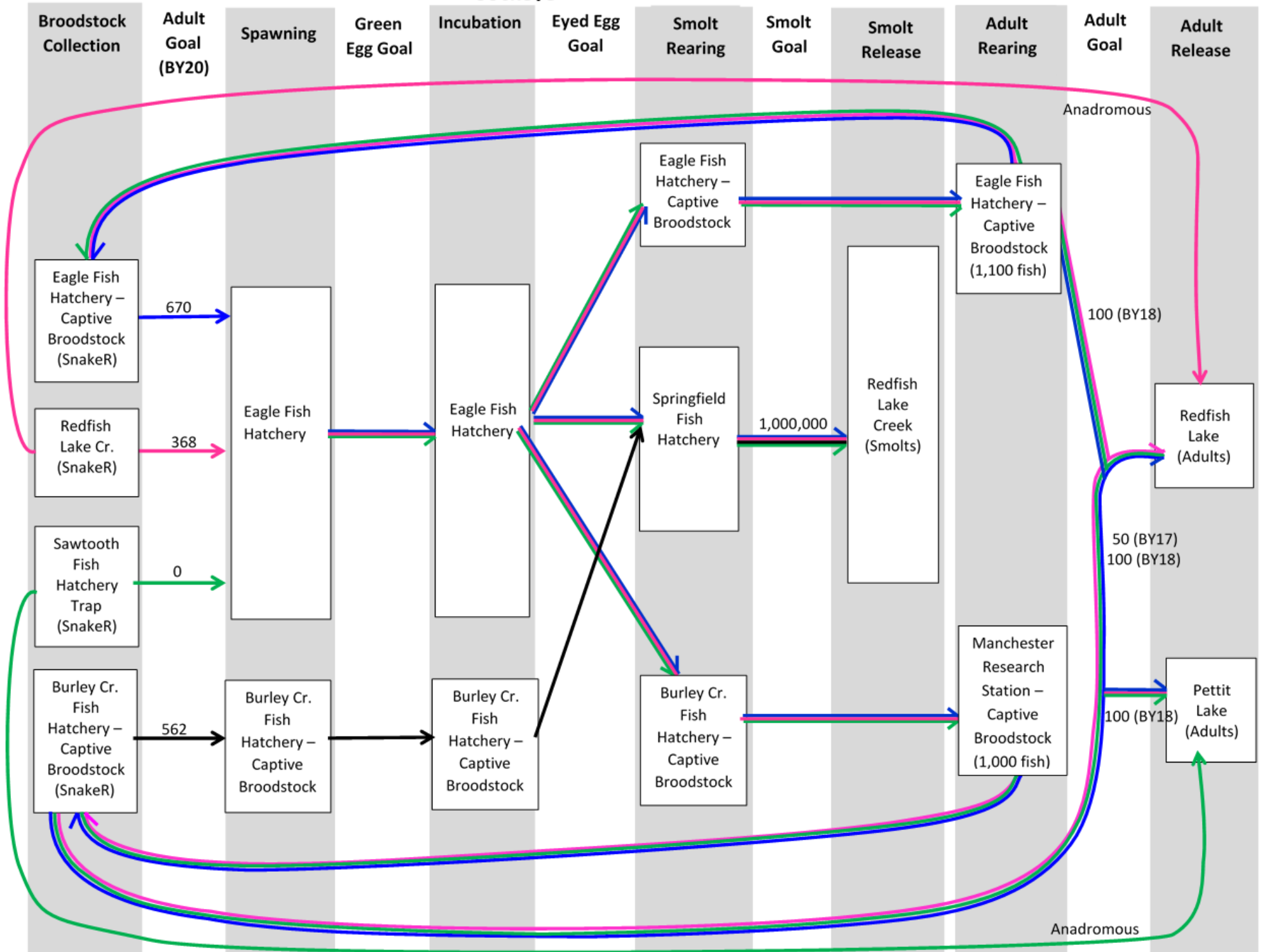


Figure 4.3. Fish and Egg movements for Sockeye. Numbers reflect 2021 releases.

4.2. Releases in 2021 (Smolt BY19, Captive Adult BY18, BY17, BY16)

4.2.1. Releases in 2021 (Smolt BY19, Captive Adult BY18, BY17, BY16) – Totals

Table 4.2a. Sockeye Captive-Reared Adult Releases in 2021.

Hatchery	Brood year	Release Site	Stock	Likely Release Date	Captive Adult Release Goals ¹
NOAA - Burley Creek	2016	Redfish Lake	Snake R.	Sept.	-
	2017	Redfish Lake	Snake R.	Sept.	50
	2018	Redfish Lake	Snake R.	Sept.	100
	2018	Pettit Lake	Snake R.	Sept.	100
Total					250
Eagle	2017	Redfish Lake	Snake R.	Sept.	-
	2018	Redfish Lake	Snake R.	Sept.	100
Total					100
Grand Total					350

¹ All adults will receive a PIT tag prior to release

Table 4.2b. BY 2019 Sockeye Smolt Releases in 2021.

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.	5/3	1,000,000	1,073,848	1,073,848	0	0	0	50,000	40,000	10,000
Grand Total				1,000,000	1,073,848	1,073,848	0	0	0	50,000	40,000	10,000

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

4.2.2. Releases in 2021 (Smolt BY19, Captive Adult BY18, BY17, BY16) – 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 2021		Changes/Conditions that Occurred 2020-Early 2021
	Release Target Smolt BY19, Adult BY18, BY17, BY16	Transport/Release Smolt BY19, Adult BY18, BY17, BY16	Fish/Egg Health BY19, BY18, BY17, BY16
<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)	Released 112,275 pre-smolts into Redfish Lake on October 28, 2020.	NC	NC

4.3. Trap Operations and Production Planning for 2021 (BY 2021 for Smolt and Captive Adult Programs)

4.3.1. Trap Operations and Production Planning for 2021 (BY 2021 for Smolt and Captive Adult Programs) – TOTALS

Table 4.3a. Sockeye Spawning for BY 2021.

Site	Stock	Type	Forecast return/ Available Broodstock	Trapping period	Broodstock Need ¹			
					M:F Ratio	Female	Male	Total
Redfish Lake Creek	Snake R.	Anad	235	7/15 - 10/15	1:1	113	113	226
Sawtooth	Snake R.	Anad	20	6/15 - 10/1	1:1	0	0	0
Eagle FH ²	Snake R.	Captive	1,100	NA	1:1	354	354	708
Burley Creek ²	Snake R.	Captive	1,200	NA	1:1	296	296	592
Grand Total			2555			763	763	1526

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 2021 (BY 2021 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”.

Plan for 2021 (BY 2021)						
Location	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	Natural adults genetically assigned to Pettit Lake will be released to Pettit Lake in September.

4.4. Marking and Rearing Plan for 2021 (Smolt BY 2020)

4.4.1. Marking and Rearing Plan for 2021 (Smolt BY 2020)– TOTALS

Table 4.4a. BY 2020 Sockeye Marking in 2021.

Hatchery	Release Site	Stock	Likely Release Date	Release Goals for 2022	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 2022	1,000,000	900,000	900,000	0	0	0	50,000	40,000	10,000
Grand Total				1,000,000	900,000	900,000	0	0	0	50,000	40,000	10,000

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

4.4.2. Marking and Rearing Plan for 2021 (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. 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. BY2021 Brood Calculator

5.1.1. BY2021 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 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%	93.00%	92.00%	1,452,300	1,578,587	1,697,405	1,697,405	330	330	660	660	660	2,200		
		Sawtooth Weir (RAS Eval)	SawA	SFH	90,000	3.00%	50%	0.00%	5,150	100.00%	93.00%	92.00%	92,700	100,761	108,345	108,345	22	22	44	44	44	2,107		
		E. Fork Salmon R. - Upper	EFNat	EFRSF	60,000	10.00%	50%	0.00%	5,600	100.00%	90.00%	88.90%	66,000	74,241	82,490	82,490	15	15	30	30	30	2,200		
	MVFH	Sawtooth Weir	SawA	SFH	279,000	3.00%	50%	0.00%	5,150	100.00%	93.00%	84.00%	287,370	342,107	367,857	367,857	72	72	144	144	144	1,996		
		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	248,000	0.00%	60%	5.00%	6,200	100.00%	90.00%	84.00%	248,000	295,238	328,042	328,042	53	35	88	93	140	2,667		
		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		
		Yankee Fork	USRB (DworB)	YFT	527,000	0.00%	60%	5.00%	6,200	100.00%	90.00%	84.00%	527,000	627,381	697,090	697,090	113	75	188	199	298	2,648		
	NSFH	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%	8.10%	3,682	92.40%	92.50%	95.20%	2,750,000	2,888,655	3,122,871	3,379,730	918	918	1836	1998	1998	1,376
Little Salmon	RapidR			RRFH	150,000	10.00%	50%	8.10%	3,682	92.40%	92.50%	95.20%	165,000	173,319	187,372	202,784	56	56	112	122	122	1,352		
Hells Canyon	RapidR			RRFH	350,000	10.00%	50%	8.10%	3,682	92.40%	92.50%	95.20%	385,000	404,412	437,202	473,162	129	129	258	281	281	1,370		
SFH	Salmon R. - Co. Line Br. - Integrated		USRIInt	SFH	250,000	0.00%	50%	3.00%	4,500	96.00%	94.00%	90.00%	250,000	277,778	295,508	307,821	69	69	138	143	143	1,748		
	Sawtooth Weir -Segregated		USRSeg	SFH	1,450,000	3.00%	50%	3.00%	4,300	96.00%	94.00%	94.00%	1,493,500	1,588,830	1,690,244	1,760,671	410	410	820	846	846	1,765		
PFH	Yankee Fork		USRSeg	SFH	300,000	3.00%	50%	3.00%	4,300	96.00%	94.00%	94.00%	309,000	328,723	349,706	364,277	85	85	170	176	176	1,756		
	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		
McFH	SFSR Knox Br. - Integrated		SFSRIInt	SFSRW	150,000	0.00%	50%	10.00%	3,800	95.00%	91.70%	85.00%	150,000	176,471	192,443	202,572	54	54	108	120	120	1,250		
	SFSR Knox Br. - Segregated		SFSRSeg	SFSRW	850,000	10.00%	50%	10.00%	3,800	95.00%	91.70%	85.00%	935,000	1,100,000	1,199,564	1,262,699	333	333	666	740	740	1,264		
	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%	3,800	92.00%	94.00%	96.00%	640,000	666,667	709,220	770,891	203	203	406	428	428	1,495		
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	175,000	0.00%	50.00%	2.00%	2,280	99.00%	81.00%	85.00%	175,000	205,882	254,176	256,743	113	113	226	231	231	758		
		Redfish Lake Creek	Redfish Lake	EFH CB	485,000	0.00%	50.00%	4.00%	2,000	100.00%	80.80%	85.00%	485,000	570,588	706,174	706,174	354	354	708	738	738	657		
		Redfish Lake Creek	Redfish Lake	NOAA CB	340,000	0.00%	50.00%	5.00%	1,700	100.00%	79.60%	85.00%	340,000	400,000	502,513	502,513	296	296	592	624	624	545		
												CELL FORMULAS			G*(1+H)	O/(N)	P/(M)	Q/(L)	ROUNDU P(R/K,O)	S/(I)-S	T+S	ROUNDU P(U/(1- (S/(1-1)/1-1-1))	ROUNDUP (S/(1-1)/1-1-1)	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. BY2021 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 SPAWNED ADULTS (U)	TRAPPED ADULTS NEEDED (V)	ADULTS TRAPPED TO MEET 1:1 RATIO (W)	SMOLTS PER TRAPPED ADULTS (X)	
STHD	PFH	SBT Egg Box-Yankee Fork	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%	3,800	95%	91.70%	NA	300,000	300,000	327,154	344,372	91	91	182	203	203	1,478	

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.