

**Calendar Year 2022
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

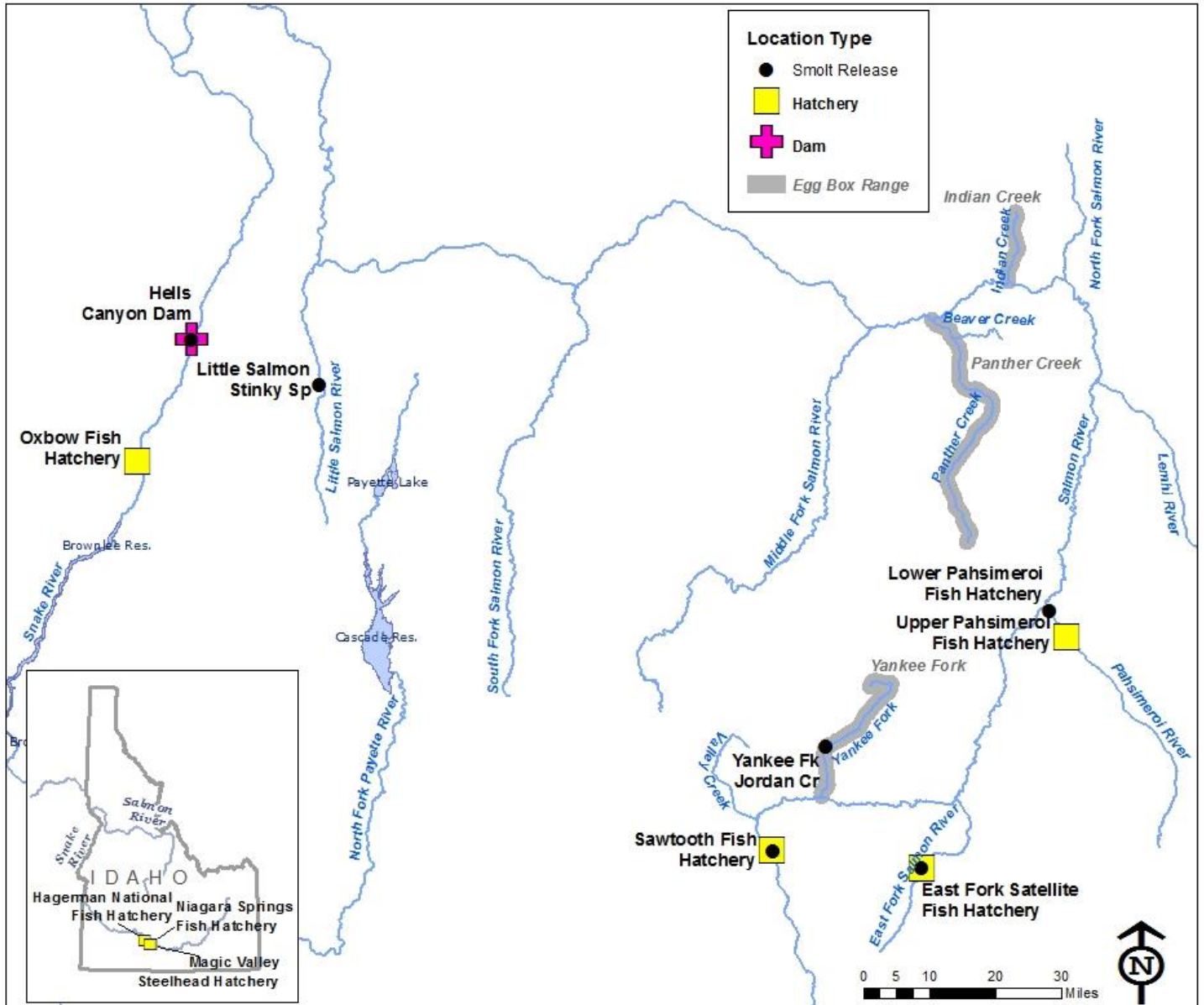


Figure 1.1. Steelhead facilities, smolt releases and egg box locations.

Table 1.1. Steelhead Release Goals.

Smolt Release Program	Rearing Facility	Release Site	Parent Stock	BY 2021 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.	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 BY2022 Outplant Goals
SBT	PFH	Yankee Fork	USRB/DworB ¹	500,000
		Panther Creek ²	PahA	300,000
		Indian Creek ²	PahA	200,000
		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

² Due to low water in Panther Creek (i.e., Beaver Creek) over the past several years, the SBT proposes to reduce Panther Creek goal to 300k and increase Indian Creek goal to 200k until a more suitable site for egg incubation is found.

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

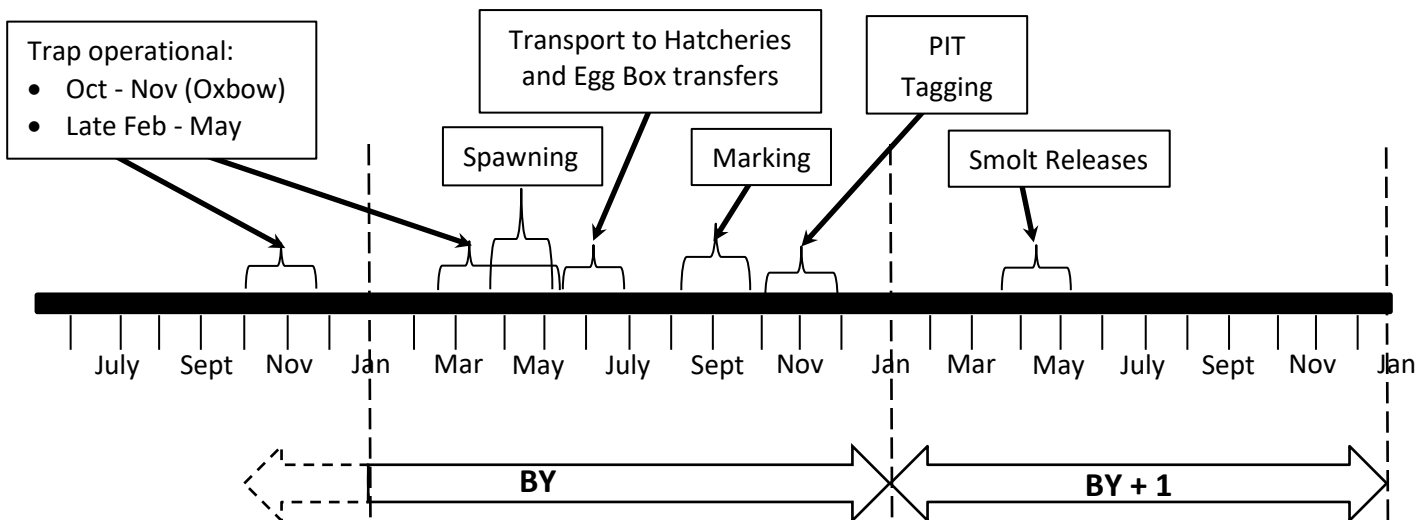


Figure 1.2. Timeline for Steelhead Production. Date ranges are shown to include all facilities' operations

STEELHEAD

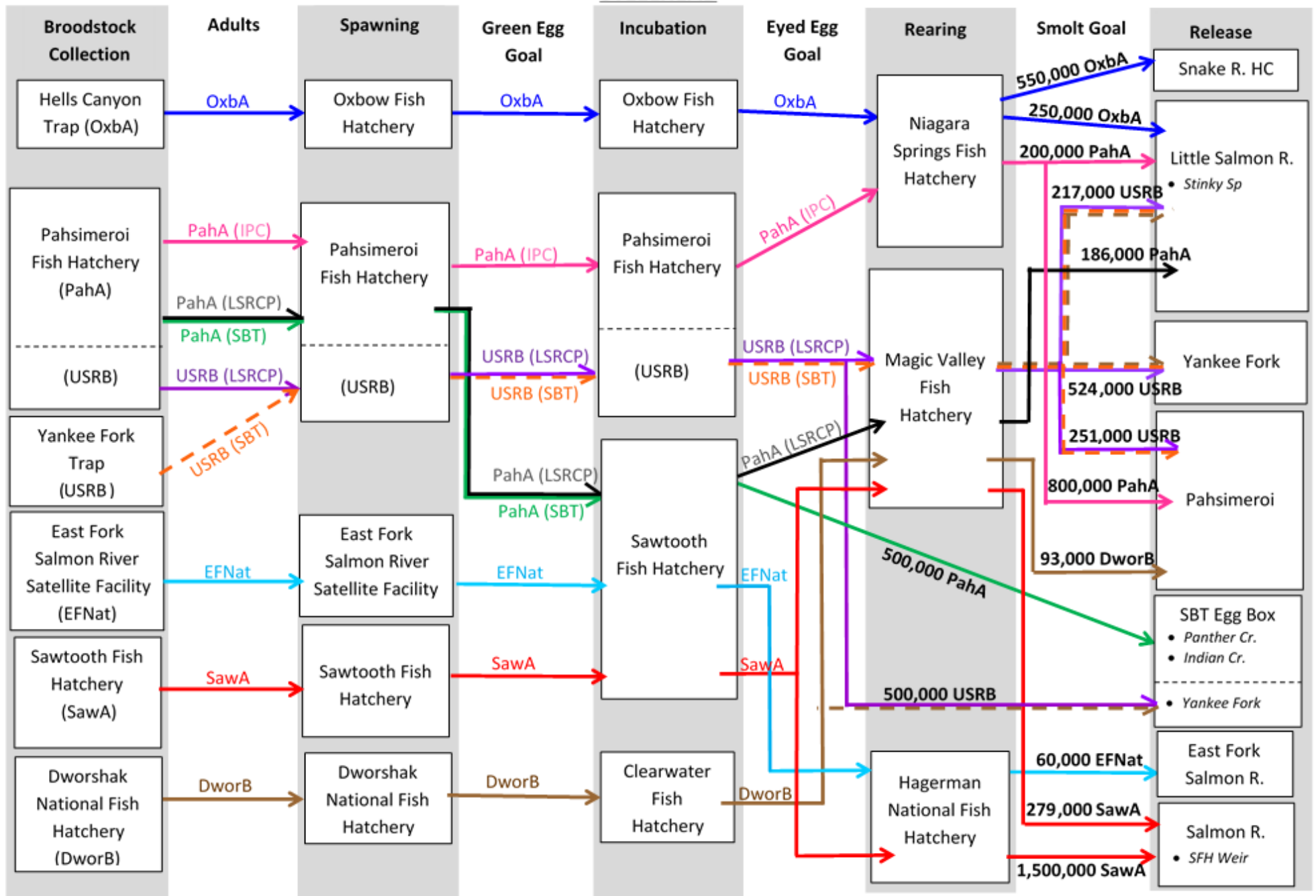


Figure 1.3. Fish and egg movements for Steelhead. Numbers reflect 2022 releases.

1.2. Releases in 2022 (Smolt BY 2021, Egg Box BY 2022)

1.2.1. Releases in 2022 (Smolt BY 2021, Egg Box BY 2022) – Totals

Table 1.2a. Steelhead Rearing Metrics for BY 2021 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	1,602,209	1/12/22	1,498,175	1,410,000	4.5	NA	NA	4/6-4/26/22	1,495,000	4.5
HNFH	Sawtooth Weir (PRAS Eval)	SawA	100,734	1/12/22	94,173	90,000	4.5	NA	NA	4/4-4/5/22	93,000	4.5
HNFH	E. Fork Salmon R. - Upper	EFNat	82,362	1/12/22	68,157	60,000	4.5	NA	NA	4/27-4/29/22	67,000	4.5
Totals			1,785,305		1,660,505	1,560,000		-			1,655,000	
MVFH	Little Salmon R. - Stinky Sp.	PahA	222,728	1/1/22	191,424	186,000	4.5	15,480	Salmon Falls Cr Res 9/27/21	4/14-4/18/22	187,600	4.5
MVFH	Pahsimeroi Weir ¹	USRB	326,539	1/1/22	255,151	248,000	4.5	42,060	Salmon Falls Cr Res 9/27/21	4/5-4/11/22	250,050	4.5
MVFH	Pahsimeroi Weir	DworB	117,160	1/1/22	95,906	93,000	4.5	15,190	Salmon Falls Cr Res 9/27/21	4/4-4/5/22	93,950	4.5
MVFH	Sawtooth Weir	SawA	326,850	1/1/22	287,109	279,000	4.5	9,440	Salmon Falls Cr Res 9/27/21	4/18-4/22/22	281,350	4.5
MVFH	Yankee Fork ¹	USRB/DworB	652,167	1/1/22	540,591	527,000	4.5	52,830	Salmon Falls Cr Res 9/27/21	4/22-5/2/22	529,700	4.5
MVFH	Little Salmon - Stinky Sp.	USRB/DworB	259,265	1/1/22	222,080	217,000	4.5	790	Salmon Falls Cr Res 9/27/21	4/11-4/14/22	217,650	4.5
Totals			1,904,709		1,592,261	1,550,000		135,790			1,560,300	
NSFH	Pahsimeroi Weir	PahA	996,272	1/7/22	815,561	800,000	4.5	34,384	Oakley Res 9-29-21	4/6-4/21/22	813,561	4.5
NSFH	Little Salmon R. - Stinky Sp.	PahA	281,021	1/7/22	215,669	200,000	4.5	24,213	Oakley Res 9-29-21	4/21-4/26/22	215,269	4.5
NSFH	Little Salmon R. - Stinky Sp.	OxbA	311,202	1/7/22	252,850	250,000	4.5	NA	NA	4/26-4/29/22	252,050	4.5
NSFH	Snake R. Hells Canyon	OxbA	627,261	1/7/22	578,706	550,000	4.5	10,880	Oakley Res 9-29-21	3/28-4/6/22	577,906	4.5
Totals			2,215,756		1,862,786	1,800,000		69,477			1,858,786	
Grand Total			5,905,770		5,115,552	4,910,000		205,267			5,074,086	

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 2021 Steelhead Inventory to Date by Mark Type in 2022

Hatchery	Release Site	Stock	Inventory to Date						PIT Tags				
			Date	Total	Adipose Fin Clip		No Clip		Total # Tags ²	Funding Source ³			
					No CWT	CWT	CWT	No CWT		CSS	LSRCP	IPC	USFWS
HNFH	Sawtooth Weir	SawA	01/12/22	1,498,175	1,312,251	185,924			8,598	2,600	6,000		
HNFH	Sawtooth Weir (PRAS Eval)	SawA	01/12/22	94,173	94,173				14,400		14,400		
HNFH	E. Fork Salmon R. - Upper	EFNat	01/12/22	68,157			68,157		8,600	2,600	6,000		
Totals				1,660,505	1,406,424	185,924	68,157	-	31,598	5,200	26,400	-	-
MVFH	Little Salmon R. - Stinky Sp.	PahA	01/01/22	191,424	191,424				2,201	2,200			
MVFH	Pahsimeroi Weir ¹	USRB	01/01/22	255,151			255,151		8,296	2,500	5,800		
MVFH	Pahsimeroi Weir	DworB	01/01/22	95,906			95,906		3,100	900	2,200		
MVFH	Sawtooth Weir	SawA	01/01/22	287,109	287,109				5,701	5,700			
MVFH	Yankee Fork ¹	USRB/DworB	01/01/22	540,591	412,989		127,602		13,288	5,300	8,000		
MVFH	Little Salmon - Stinky Sp.	USRB/DworB	01/01/22	222,080	222,080				2,198	2,200			
Totals				1,592,261	1,113,602	-	478,659	-	34,784	18,800	16,000	-	-
NSFH	Pahsimeroi Weir	PahA	01/07/22	815,561	815,561	-	-	-	8,998	3,000		6,000	
NSFH	Little Salmon R. - Stinky Sp.	PahA	01/07/22	215,669	215,669	-	-	-	2,299	1,800		500	
NSFH	Little Salmon R. - Stinky Sp.	OxbA	01/07/22	252,850	252,850	-	-	-	2,801	2,300		500	
NSFH	Snake R. Hells Canyon	OxbA	01/07/22	578,706	578,706	-	-	-	8,595	2,600		6,000	
Totals				1,862,786	1,862,786	-	-	-	22,693	9,700	-	13,000	-
Grand Total				5,115,552	4,382,812	185,924	546,816	-	89,075	33,700	42,400	13,000	-

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

³ 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 2022 Steelhead Egg box transfers in 2022

1.2.2. Releases in 2022 (Smolt BY 2021, Egg Box BY 2022) - 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 2022		Changes/Conditions that Occurred 2021-Early 2022		
	Release Target Smolt BY21, Egg BY22	Transport/Release Smolt BY21, Egg BY22	Fish Feeding BY21	Fish/Egg Health BY21	Marking BY21
<i>Niagara Springs Fish Hatchery (SOP Section 1.2)</i>					
Pahsimeroi Weir (PahA)	NC	BY 22 eggs will be dry shipped	NC	Aquaflor Treatment; CWD	NC
L. Salmon R. Stinky Springs (PahA/OxbA)	NC	BY 22 PahA eggs will be dry shipped	NC	Aquaflor Treatment; CWD	NC
Snake R. Hells Canyon (OxbA)	NC	BY22 eggs will be dry shipped	NC	NC	NC
<i>Pahsimeroi Fish Hatchery - Egg transfers to SBT - BY 2022 (SOP Sections 1.4 and 1.10)</i>					
Yankee Fork (USRB)	NC	NC			
<i>Sawtooth Fish Hatchery - Egg transfers to SBT - BY 2022 (SOP Sections 1.4, 1.7 and 1.10)</i>					
Indian Creek (PahA)	BY22- 200,000 eggs to be released in Indian Creek.				
Panther Creek (PahA)	BY22 - 300,000 eggs to be released in Panther Creek.				
<i>Hagerman National Fish Hatchery (SOP Section 1.5)</i>					
East Fork Weir (EFnat)	BY21-Projected release of 67,000 is 11.2% over the release goal of 60,000.	BY22 eggs will be dry shipped	Aquaflor and Oxytet Med Feed treatments were given to all BY21 fish	NC	NC

Release Location	Plan for 2022		Changes/Conditions that Occurred 2021-Early 2022		
	Release Target Smolt BY21, Egg BY22	Transport/Release Smolt BY21, Egg BY22	Fish Feeding BY21	Fish/Egg Health BY21	Marking BY21
Sawtooth Weir (SawA)	NC	BY22 eggs will be dry shipped	Aquaflor and Oxytet Med Feed treatments were given to all BY21 fish	Furunculosis and CWD were diagnosed in BY21	March PIT Tagging to evaluate length/weight relationship of fish right before release
<i>Magic Valley Fish Hatchery (SOP Section 1.6)</i>					
Sawtooth Weir (SawA)	NC	BY22 eggs will be dry shipped	Aquaflor Med Feed treatment given to indoor vat 3 prior to fish marking July 2021	CWD diagnosed indoor vat 3 prior to fish marking July 2021	NC
L. Salmon R. Stinky Springs (PahA)	NC	BY 22 eggs will be dry shipped	NC	NC	NC
Pahsimeroi Weir (USRB)	NC	BY 22 eggs will be dry shipped	NC	NC	NC
Pahsimeroi Weir (DworB)	NC	NC	NC	NC	NC
Yankee Fork (USRB/DworB)	NC	BY 22 USRB eggs will be dry shipped	NC	NC	NC
L. Salmon R. Stinky Springs (USRB/DworB)	NC	BY 22 USRB eggs will be dry shipped	NC	NC	NC

1.3. Trap Operations and Production Planning for 2022 (Smolt BY 2022, Egg Box BY 2022)

1.3.1. Trap Operations and Production Planning for 2022 (Smolt BY 2022, Egg Box BY 2022) – TOTALS

Table 1.3a. Steelhead Projected BY 2022 Smolt Production Goals for Release in 2023

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 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 Return to LGD ⁶	Trapping period		Trapping Goal ¹			
								Females	Males ⁵				Total	Season	Dates	Female	Male	Total
SFH	SawA	HNFH	Sawtooth Weir	1,667,742	SawA	HNFH	5,150	324	324	SawA	HNFH	5,189	Spring	3/18-5/5/22	324	324	648	
			Sawtooth Weir (RAS Eval)	106,452			5,150	21	21				Spring	3/18-5/5/22	21	21	42	
		MVFH	Sawtooth Weir	361,429		MVFH	5,150	71	71				Spring	3/18-5/5/22	71	71	142	
EFSR Sat.	EFNat	HNFH	E. Fork Salmon R. - Upper	76,948	EFNat	HNFH	5,900	14	14	EFNat	HNFH	112	Spring	3/25-5/20/22	14	14	28	
PFH	PahA	MVFH	Little Salmon R. - Stinky Sp.	247,024	PahA	MVFH	5,500	45	45	PahA	MVFH	2,650	Spring	2/18 - 5/1/22	45	45	90	
			NSFH	Pahsimeroi Weir			1,051,374	NSFH	5,500						192	192	192	192
		NSFH	Little Salmon R. - Stinky Sp.	262,843		NSFH	5,500	48	48		48				48	96		
			SFH	SBT Egg Box-Panther Creek ⁷			479,826	SFH	5,500		88				88	88	176	
	USRB (DworB) ³	MVFH	Pahsimeroi Weir	Yankee Fork	697,090	USRB (DworB)	MVFH	6,200	53	35	USRB (DworB)	MVFH	315	Spring	2/18 - 5/1/22	56	37	93
				Little Salmon - Stinky Sp.	292,778			6,200	113	75						119	79	199
		PFH/CFH ²	SBT Egg Box-Yankee Fork	611,111	PFH/CFH		6,200	48	32	51		34				85		
				6,200			99	99	104	104		209						
OFH	OxbA	NSFH	Little Salmon R. - Stinky Sp.	361,983	OxbA	NSFH	6,200	59	59	OxbA	NSFH	3,151	Fall	11/1-11/30/21	300	300	600	
			Snake R. Hells Canyon	796,363			6,200	129	129				Spring	4/4-4/5/22				
DNFH	DworB	MVFH	Pahsimeroi Weir	144,983	DworB ⁴	MVFH	6,681	22	11	DworB	MVFH	3,028			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.

⁷ Due to low water in Panther Creek (i.e., Beaver Creek) over the past several years, the SBT proposes to reduce Panther Creek goal to 300k and increase Indian Creek goal to 200k until a more suitable site for egg incubation is found.

Table 1.3c. BY2022 Steelhead adult female broodstock acquisition schedules for hatchery programs.

Season	Week of	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 2021	Oct	0	0	0	0	0	0	0	0	0	0	0	0
	Nov	300	300	0	0	0	0	0	0	0	0	0	0
	Dec	0	300	0	0	0	0	0	0	0	0	0	0
Spring 2022	13-Feb	0	300	0	0	0	0	0	0	0	0	0	0
	20-Feb	0	300	0	0	0	0	0	0	0	0	0	0
	27-Feb	0	300	0	0	0	0	0	0	0	0	0	0
	6-Mar	0	300	0	0	0	0	0	0	0	0	0	0
	13-Mar	0	300	0	0	0	0	0	0	0	0	0	0
	20-Mar	0	300	0	0	0	0	0	0	0	0	22	22
	27-Mar	0	300	88	88	26	26	32	32	0	0	0	22
	3-Apr	75	375	40	128	78	104	137	169	0	0	0	22
	10-Apr	0	375	77	204	130	233	124	292	0	0	0	22
	17-Apr	0	375	77	281	78	311	54	347	3	3	0	22
	24-Apr	0	375	76	356	19	329	69	416	6	10	0	22
	1-May	0	375	39	395	0	329	0	416	4	14	0	22
	8-May												
15-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
13-Feb	0	0	0	0	0	0
20-Feb	0	0	0	0	0	0
27-Feb	0	0	0	0	0	0
6-Mar	0	0	0	0	0	0
13-Mar	0	0	0	0	0	0
20-Mar	0	0	0	0	0	1
27-Mar	0	0.2227	0.0786	0.0766	0	0
3-Apr	0.25	0.1002	0.2358	0.3288	0	0
10-Apr	0	0.1938	0.3931	0.2973	0	0
17-Apr	0	0.1938	0.2358	0.1306	0.2308	0
24-Apr	0	0.1915	0.0566	0.1667	0.4615	0
1-May	0	0.098	0	0	0.3077	0

	OxbA	PahA	USRB	SawA	EFNat	DworB
Total Females to Trap (from Brood Calculator)	300	395	329	416	14	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 2022 may require up to 200 DWOR females spawned.

Table 1.3d. Steelhead Spawning for BY 2023 - 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	Trapping period		Trapping Goal ¹		
								Females	Males ²			Season	Dates	Female	Male	Total
OFH	OxbA	NSFH	Little Salmon R. - Stinky Sp.	361,983	OxbA	NSFH	6,200	59	59	OxbA	NSFH	fall/spring	11/1-11/30 and 4/5-4/6	300	300	600
			Snake R. Hells Canyon	796,363			6,200	129	129							

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. BY2023 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 2022	Oct	0	0	0
	Nov	300	300	1
	Dec	0	300	0

Total Females to Trap (from Brood Calculator)	OxbA
	300

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 2022 (Smolt BY 2022, Egg Box BY 2022) – 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 2022 (BY 2022)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
<i>Hells Canyon Trap/Oxbow Hatchery (Fall 2021-Spring 2022) (SOP Section 1.3)</i>					
Niagara Springs (OxbA)	NC	NC	NC	Non-working chiller will require 2X weekly egg shipments in April to NSFH	Try to put 150 into HCR in the spring to balance distributions
<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	We plan to fly milt via Gem Air over from DNFH if we are short on males again.	NC
Magic Valley (USRB)	NC	NC	NC	We plan to fly milt via Gem Air over from DNFH if we are short on males again.	NC
<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	NC	NC	NC	NC

Rearing Location	Plan for 2022 (BY 2022)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
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 2022 (Smolt BY 2022)

1.4.1. Marking and Rearing Plan for 2022 (Smolt BY 2022) – TOTALS

Table 1.4a. Steelhead Projected marking of BY 2022 Production for release in 2023

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	1,410,000				8,600	2,600	6,000	
	Sawtooth Weir (RAS Eval) ²	SawA	90,000	90,000				-			
	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	-	17,200	5,200	12,000	-
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		8,300	2,500	5,800	
	Pahsimeroi Weir	DworB	93,000			96,000		3,100	900	2,200	
	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	816,000	-	-	-	9,000	3,000	6,000	
	Little Salmon R. - Stinky Sp.	PahA	200,000	212,000	-	-	-	2,300	1,800	500	
	Little Salmon R. - Stinky Sp.	OxbA	250,000	258,000	-	-	-	2,800	2,300	500	
	Snake R. Hells Canyon	OxbA	550,000	566,000	-	-	-	8,600	2,600	6,000	
Totals			1,800,000	1,852,000	-	-	-	22,700	9,700	13,000	-
Grand Totals			4,910,000	4,472,000	-	540,000	-	74,700	33,700	41,000	-

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

² Marking and Tagging for the PRAS group is TBD.

1.4.2. Marking and Rearing Plan for 2022 (Smolt BY 2022) – 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 2022 (BY 2022)			
	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	NC	NC
Snake R. Hells Canyon (OxbA)	NC	NC	NC	NC
L. Salmon R. Stinky Springs (PahA)	NC	NC	NC	NC
Pahsimeroi Weir (PahA)	NC	NC	NC	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	NC
<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 2022 (BY 2022)			
	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

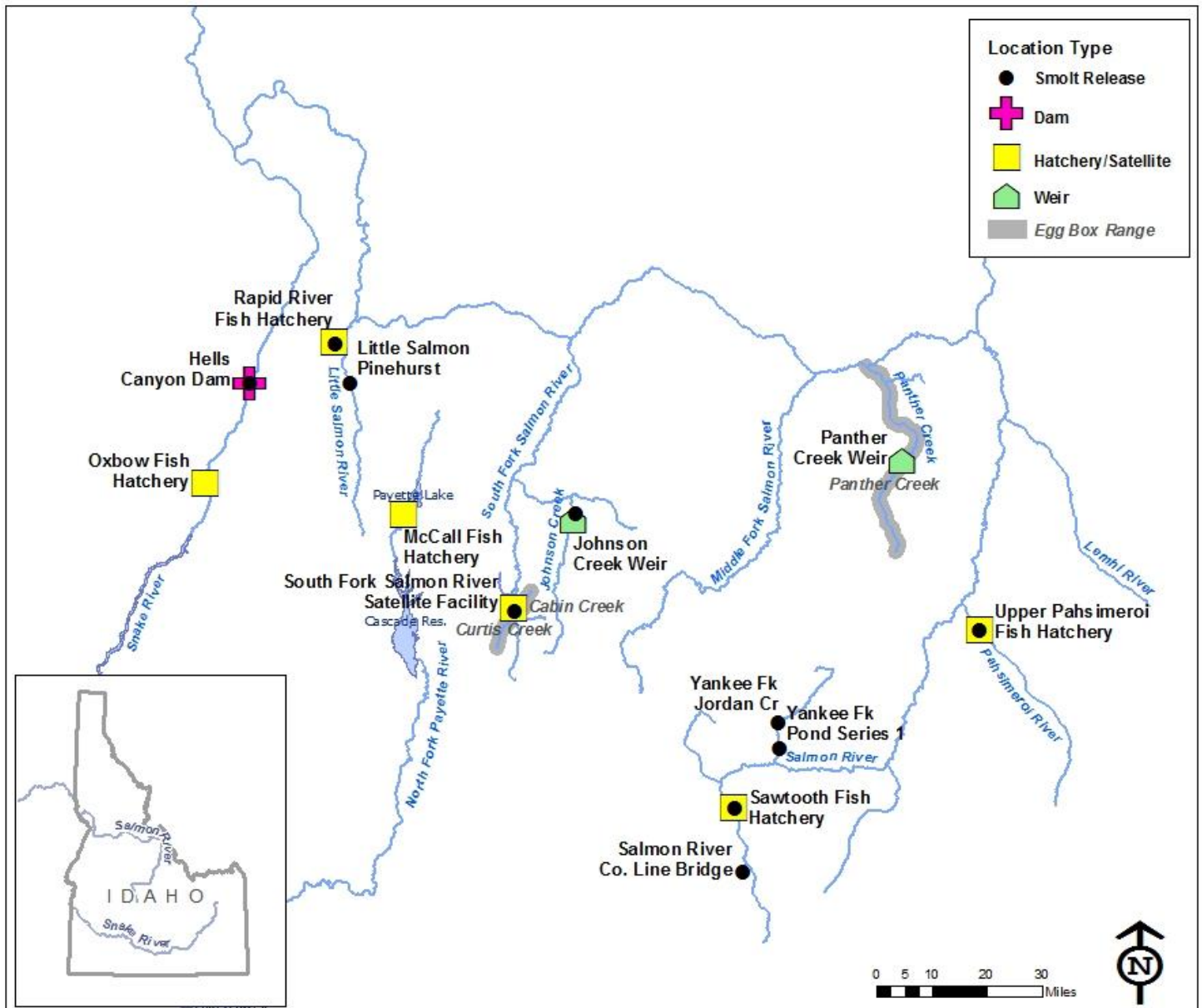


Figure 2.1. Spring/Summer Chinook salmon hatchery facilities, smolt release locations and egg box locations.

Table 2.1. Sp/Su Chinook Release Goals.

Smolts

Release Program	Release Site	Rearing Facility	Stock	BY2020 Smolt Release Goal
IPC / IDFG	Rapid River Hatchery ²	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
	Hells Canyon Dam ^{1, 2}		RapidR	-
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 BY2022 Goal	Smolt BY2022 Release Goal
Egg Box Release						
SBT Eggbox	Curtis/Cabin Creek	McFH	SFSRSeg	344,372	300,000	NA
SBT Eggbox ³	Panther Creek	PFH/Panther Cr.	PahSeg/PantherCr	918,326	800,000	NA
Egg Transfer						
Clearwater Su Chinook ³	Powell Ponds	McFH/CFH	SFSRSeg	770,891	666,667	640,000

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

² Rapid River and Hells Canyon Dam smolt release allocations changed in March 2022 to accommodate surplus Rapid River stock production at SFH: Rapid River - 2.8 mil, HC reared at SFH - 330k

³ 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

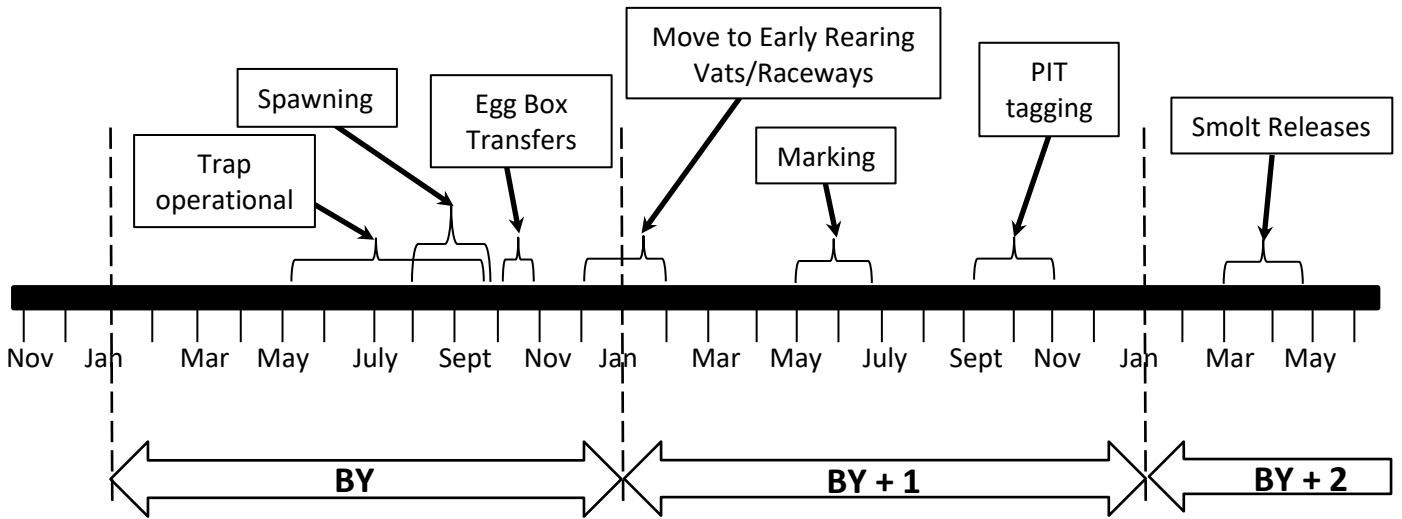


Figure 2.2. Timeline for Spring/Summer Chinook Production. Date ranges are shown to include all facilities' operations.

CHINOOK

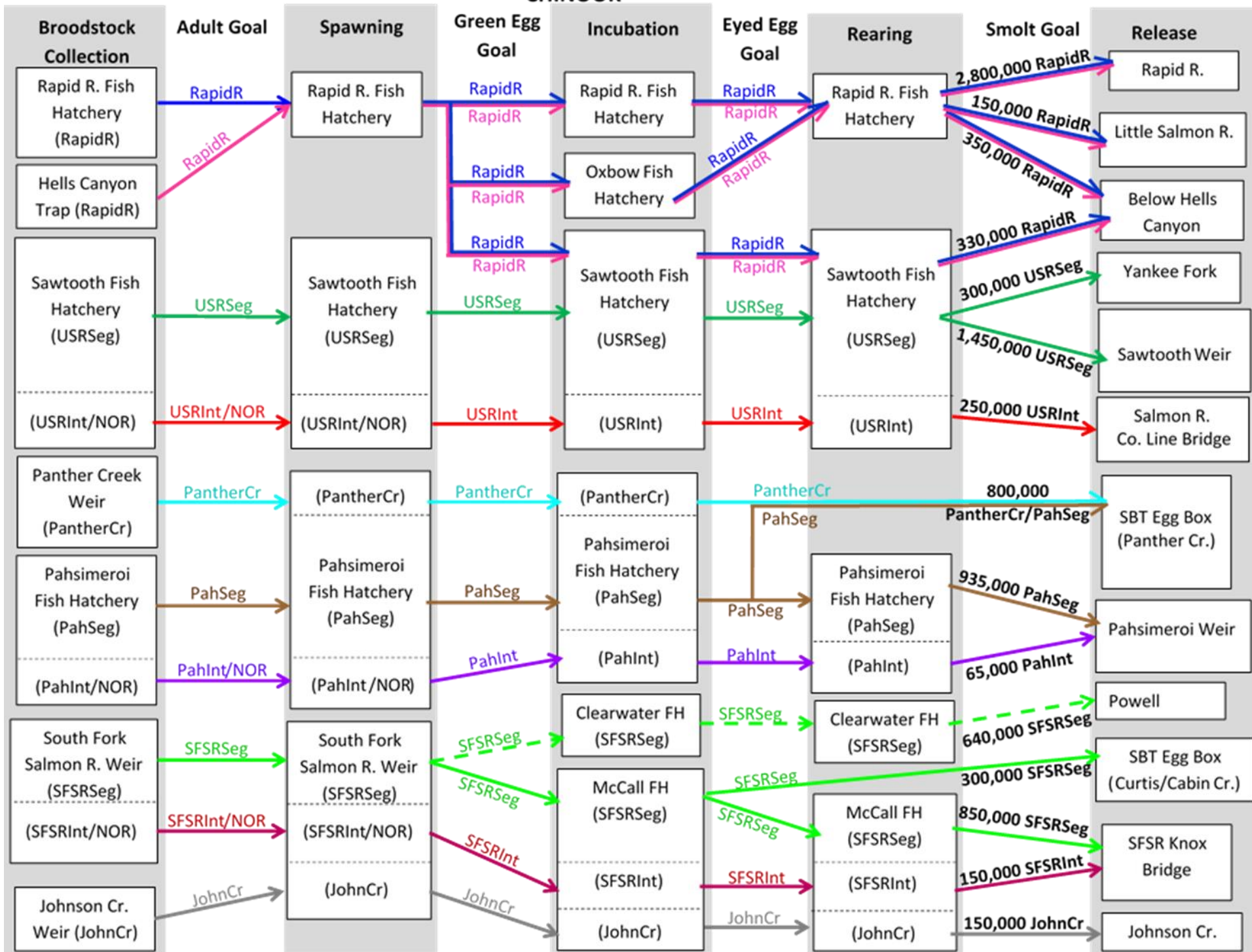


Figure 2.3. Fish and Egg movements for Sp and Su Chinook. Numbers reflect 2022 releases. Surplus releases of RapidR stock occurred in 2022 that were not a part of established program goals. Movement of RapidR eggs and fish are shown here for explanatory purposes.

2.2. Releases in 2022 (Smolt BY 2020, Egg Box BY 2022)

2.2.1. Releases in 2022 (Smolt BY 2020, Egg Box BY 2022) – Totals

Table 2.2a. BY2020 SMOLTS - Sp/Su Chinook Salmon inventories by life stage, smolt release goals and projected releases in 2022.

Hatchery	Release Site	Stock	Inventory To Date		Release Goals		Projected Smolt Release		
			Date	Number	Number	Size (FPP)	Dates	Number	Size (FPP)
RRFH ³	Rapid River Hatchery ²	RapidR	2/1/22	3,355,062	2,500,000	20	3/14/22	2,852,062	20.0
	Little Salmon (@ Pinehurst)	RapidR			150,000	20	3/18/22	150,000	20.0
	Hells Canyon	RapidR			350,000	20	3/14-3/17/22	350,000	20.0
Total				3,355,062	3,000,000			3,352,062	
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	12/31/21	201,346	250,000	18	4/7/22	201,186	18.0
	Sawtooth Weir -Segregated	USRSeg	12/31/21	1,078,782	1,450,000	18	4/5-4/7/22	1,078,222	18.0
	Yankee Fork	USRSeg	12/31/21	334,664	300,000	18	4/11-4/12/22	334,504	18.0
	Hells Canyon Dam ^{1,2}	RapidR	12/31/21	331,613	-	20	3/21/-3/23/22	331,505	19.0
Total				1,946,405	2,000,000			1,945,417	
PFH	Pahsimeroi Weir - Integrated	PahInt	12/31/21	64,594	65,000	20	4/15 -4/25/22	64,000	15.0
	Pahsimeroi Weir - Segregated	PahSeg	12/31/21	427,439	935,000	20		426,000	15.0
Total				492,033	1,000,000			490,000	
McFH	SFSR Knox Br. - Integrated	SFSRInt	1/31/22	157,884	150,000	20	4/11-4/15/22	157,800	18.0
	SFSR Knox Br. - Segregated	SFSRSeg	1/31/22	723,584	850,000	20	4/11-4/15/22	723,500	18.0
	Johnson Creek	Johnson Cr.	1/31/22	144,322	150,000	20	4/4-4/8/22	144,250	25.0
Total				1,025,790	1,150,000			1,025,550	
Grand Total				6,819,290	7,150,000			6,813,029	

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

² Rapid River and Hells Canyon Dam smolt release allocations changed in March 2022 to accommodate surplus Rapid River stock production at SFH: Rapid River - 2.8 mil, HC reared at SFH - 330k

³ Rapid River eyed eggs and inventory are not partitioned by release site prior to release

Table 2.2b. BY2020 SMOLTS for release in 2022 - Sp/Su Chinook Salmon Inventory to Date by Mark Type in 2022

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 ²	Rapid River Hatchery	RapidR	2/1/22	3,472,231	2,852,062	120,169			51,987	32,000		20,000		
	Little Salmon (@ Pinehurst)	RapidR			150,000				-					
	Hells Canyon	RapidR			350,000				-					
Totals				3,472,231	3,352,062	120,169	-	-	51,987	32,000	-	20,000	-	-
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	12/31/22	201,346	-	-	201,346	-	1,000				1,000	
	Sawtooth Weir - Segregated	USRSeg	12/31/22	1,078,782	960,468	118,314	-	-	18,899	5,700	13,200			
	Yankee Fork	USRSeg	12/31/22	334,664	216,054	118,610	-	-	8,492	700	7,800			
	Hells Canyon Dam ¹	RapidR	12/31/22	331,613	331,613	-	-	-	1,996		2,000			
Totals				1,946,405	1,508,135	236,924	201,346	-	30,387	6,400	23,000	-	1,000	-
Pah	Pahsimeroi Weir - Integrated	PahInt	12/31/21	64,594			64,594		-					
	Pahsimeroi Weir - Segregated	PahSeg	12/31/21	427,439	303,955	123,484			21,400	6,400		15,000		
Totals				492,033	303,955	123,484	64,594	-	21,400	6,400	-	15,000	-	-
McFH	SFSR Knox Br. - Integrated	SFSRInt	1/31/22	157,729			157,729		26,000	26,000				
	SFSR Knox Br. - Segregated	SFSRSeg	1/31/22	722,831	602,218	120,613			26,000	6,000	20,000			
	Johnson Creek	Johnson Cr.	1/31/22	144,322		-	144,322	-	2,111				2,111	
Totals				1,024,882	602,218	120,613	302,051	-	54,111	32,000	20,000	-	2,111	-
Grand Total				6,935,551	5,766,370	601,190	567,991	-	157,885	76,800	43,000	35,000	3,111	-

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

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

See **Table 2.1** for BY 2022 Sp/Su Chinook salmon egg transfers to streamside egg boxes in 2022.

2.2.2. Releases in 2022 (Smolt BY 2020, Egg Box BY 2022) – 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 2022		Changes/Conditions that Occurred 2021-Early 2022		
	Release Target Smolt BY20, Egg BY22	Transport/Release Smolt BY20, Egg BY22	Fish Feeding BY20	Fish/Egg Health BY20	Marking BY20
<i>Rapid River Fish Hatchery (SOP Section 2.2)</i>					
Rapid River Hatchery (RapidR)	Rapid River and Hells Canyon Dam smolt release numbers changed in March 2022 to accommodate surplus Rapid River stock production at SFH (2.8 million released at Rapid River).	NC	NC	NC	NC
Little Salmon R. (RapidR)	NC	NC	NC	NC	NC
Hells Canyon (RapidR)	350k reared at RR, 330k reared at SFH	NC	NC	NC	NC
<i>McCall Fish Hatchery (SOP Sections 2.3, 2.4 and 2.9)</i>					
SFSR Knox Bridge (SFSRInt)	NC	NC	NC	NC	NC
SFSR Knox Bridge (SFSRSeg)	NC	Poor adult return in 2020 caused a 15% shortage from RG	NC	NC	NC
Johnson Cr. (JohnCr)	NC	NC	NC	NC	NC

Location	Plan for 2022		Changes/Conditions that Occurred 2021-Early 2022		
	Release Target Smolt BY20, Egg BY22	Transport/Release Smolt BY20, Egg BY22	Fish Feeding BY20	Fish/Egg Health BY20	Marking BY20
Curtis/Cabin Cr. Egg Box (SFSRSeg)	NC	New Remote Site Incubators design used for release in 2021 w/ anticipated modifications for BY22 releases.			
<i>Pahsimeroi Fish Hatchery (SOP Section 2.5)</i>					
Pahsimeroi Weir Integrated (PahInt)	NC	NC	BY20 was fed two treatments of Aquamycin medicated Feed in July and September 2021. Mortality remains low as of 1/15/2022	NC	NC
Pahsimeroi Weir Segregated (PahSeg)	BY20 smolt release ~46% of goal (426,000).	BY20 smolt release ~46% of goal (426,000).	BY20 was fed two treatments of Aquamycin medicated Feed in July and September 2021. Mortality remains low as of 1/15/2022	NC	Due to low total production relative to smolt goals, these fish will not be PIT tagged in 2022 due to desire to minimize stress and potential disease outbreaks.
Panther Cr. Egg Box (PahSeg)	BY22 - acquire special use permit from USFS to install Panther Creek weir for broodstock collection.	NC			
<i>Sawtooth Fish Hatchery (SOP Sections 2.6 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	BY20-Projected release of 201,186 is 80.5% of the release goal of 250,000	NC	NC	NC	NC

Location	Plan for 2022		Changes/Conditions that Occurred 2021-Early 2022		
	Release Target Smolt BY20, Egg BY22	Transport/Release Smolt BY20, Egg BY22	Fish Feeding BY20	Fish/Egg Health BY20	Marking BY20
Sawtooth Weir Segregated (USRSeg)	BY20-Projected release of 1,078,222 is 74.4% of the release goal of 1,450,000	NC	NC	NC	NC
Yankee Fork (USRSeg)	NC	Release smolts as soon as conditions permit in Yankee Fork.	NC	NC	NC
Hells Canyon (Rapid R)	Excess fish from RapidR to fill rearing space due to falling short on SFH brood. Rapid River and Hells Canyon Dam smolt release numbers changed in March 2022 to accommodate surplus Rapid River stock production at SFH (330k released at HC from SFH).	Contracted to be hauled in march	NC	NC	NC

2.3. Trap Operations and Production Planning for 2022 (Smolt BY 2022)

2.3.1. Trap Operations and Production Planning for 2022 (Smolt BY 2022) – TOTALS

Table 2.3a. BY 2022 Sp/Su Chinook Smolt Production Goals for Release in 2024.

Hatchery	Release Site	Stock	2024 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 2022 and Egg Transfers used for BY 2022 Smolt Production (Release in 2024).

Program	Release Location	Hatchery Egg Source	Stock	Green Egg Target	Eyed Egg BY2022 Goal	Smolt BY2022 Release
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						
Chinook ²	Powell Ponds	McFH/CFH	SFSRSeg/CFH	770,891	666,667	640,000

¹ Brood stock may be sourced from Panther Creek and transferred to the Pahsimeroi Hatchery in 2022.

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. BY2022 SMOLTS -Chinook Spawning for BY 2022 - 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	4,069,580	3,679	1108	1108					13,843											2,406					
			Little Salmon																1,203	1,203								0
			Hells Canyon Trap																									
SFH	USRIInt	SFH	Salmon R. - Co. Line Br. - Integrated	318,436	4,350								100	721	64	461							153, origin TBD	0				
	USRSeg	SFH	Sawtooth Weir - Seg	1,779,603	4,200	424	424																	875				
			Yankee Fork	368,194	4,200	88	88																		182			
PFH	PahInt	PFH	Pahsimeroi - Int	80,033	4,500																			36, origin TBD	0			
	PahSeg	PFH	Pahsimeroi - Seg	1,266,376	4,500	282	282																		890			
			SBT Eggbox - Panther Cr. ²			TBD	TBD																		TBD			
SFSR	SFSRIInt	McFH	SFSR - Int ⁷	202,572	3,800																				108, origin TBD	0		
	SFSRSeg	McFH	SFSR - Seg ⁷	1,262,699	3,800	333	333																			561		
			SBT Eggbox - Curtis/Cabin Cr. ⁷	344,372	3,800	91	91																				621	
			Clearwater Su Chinook ²	770,891	3,800	203	203																					383
	JohnCr	McFH	Johnson Creek	212,523	4,500																					310		
																										441		
																										370		
																										370		
																										101		
																										101		
																										214		
																										214		
																										48		
																										48		
																										57		
																										57		

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. BY2022 - Sp/Su Chinook Adult broodstock acquisition schedules for hatchery programs.

Week of	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
1-May	16	0	0	0	0	0	0	0	0	0	0
8-May	23	0	0	0	0	0	0	0	0	0	0
15-May	44	0	0	0	0	0	0	0	0	0	0
22-May	99	0	0	0	0	0	0	0	0	0	0
29-May	189	0	0	0	0	0	0	0	0	0	0
5-Jun	333	0	0	0	0	0	0	0	0	0	0
12-Jun	544	41	0	0	2	0	0	6	0	0	3
19-Jun	925	126	0	0	51	0	0	63	0	0	6
26-Jun	1,395	317	0	0	200	0	0	157	0	0	14
3-Jul	1,860	569	0	0	336	0	0	315	0	0	31
10-Jul	2,117	718	0	0	430	0	0	472	0	0	46
17-Jul	2,231	811	0	0	490	0	0	685	0	0	53
24-Jul	2,301	875	0	0	501	0	0	756	0	0	59
31-Jul	2,366	898	0	0	533	0	0	883	0	0	61
7-Aug	2,383	907	0	0	560	0	0	1008	0	0	73
14-Aug	2,395	950	0	0	574	0	0	1134	0	0	90
21-Aug	2,402	1012	0	0	592	0	0	1232	0	0	104
28-Aug	2,406	1045	0	0	599	0	0	1261	0	0	111
4-Sep	2,406	1056	0	0	615	0	0	1370	0	0	114
11-Sep	2,406	1056	0	0	638	0	0	1370	0	0	114
18-Sep	2,406	1056	0	0	655	0	0	1370	0	0	114
25-Sep	2,406	1056	0	0	664	0	0	1370	0	0	114
Total	2,406	1056	0	0	664	0	0	1370	0	0	114
Forecasted Return to LGD in 2022	13,878	2,039	100	721	890	30	191	4,806	561	621	441

Proportion of brood acquisition over season											
Week of	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 2022 (Smolts BY 2022) – 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 2022 (BY 2022)				
	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	No trapping in 2022 due to absence of returning adults and construction.	RRFH will have to make up balance of broodstock	NC	No distributions in 2022
<i>South Fork Salmon River and Johnson Creek Weirs (SOP Sections 2.3 and 2.4)</i>					
Johnson Cr. (JohnCr)	NC	High likelihood of holding & spawning @ RR	NC	NC	NC
SFSR Knox Bridge Integrated (SFSRInt)	NC	High likelihood of holding & spawning @ RR	NC	NC	NC
SFSR Knox Bridge Segregated (SFSRSeg)	NC	High likelihood of holding & spawning @ RR	NC	NC	NC
SBT Egg Box – Curtis/Cabin Cr. (SFSRSeg)	NC	High likelihood of holding & spawning @ RR	NC	Nc	Nc
Clearwater Fish Hatchery Egg Transfer Segregated-SUM (SFSRSeg-CFH)		High likelihood of holding & spawning @ RR			

Juvenile/Egg Release Location	Plan for 2022 (BY 2022)				
	Adult Fish Health	Trap Ops	Production target changes	Spawning protocol changes	Disposition of adults
<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	Collection broodstock in Panther Creek and transport live adults to PFH for holding and spawning.	NC	NC	Adult carcasses will be distributed back to Panther Creek.
<i>Sawtooth Fish Hatchery (SOP Sections 2.6, 2.7 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	NC	Trap was operated like steelhead trapping until first sort, then operated like normal SOP until the end of trapping	NC	NC	NC
Sawtooth Weir Segregated (USRSeg)	NC	Trap was operated like steelhead trapping until first sort, then operated like normal SOP until the end of trapping	NC	NC	NC
Yankee Fork (USRSeg)	NC	Trap was operated like steelhead trapping until first sort, then operated like normal SOP until the end of trapping	NC	NC	NC

2.4. Early Rearing and Marking Plan for 2022 (Smolt BY 2021)

2.4.1. Early Rearing and Marking Plan for 2022 (Smolt BY 2021) – TOTALS

Table 2.4a. Sp/Su Chinook Projected Marking of BY 2021 juveniles to be marked in 2022 (released in 2023).

Hatchery	Release Site	Stock	Likely Marking Date(s)	Release Goals for 2023	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	TBD	2,500,000	2/1/22	3,427,492	2,729,646	2,609,646	120,000			52,000	32,000	20,000		
	Little Salmon	RapidR		150,000			382,095	382,095				-				
	Hells Canyon	RapidR		350,000			163,834	163,834				-				
Totals				3,000,000		3,427,492	3,275,575	3,155,575	120,000	-	-	52,000	32,000	20,000	-	-
SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	TBD	250,000	12/31/21	197,428	177,685				177,685	1,000				1,000
	Sawtooth Weir - Segregated	USRSeg		1,450,000	12/31/21	1,468,726	1,321,853	1,201,853	120,000			18,900	5,700	13,200		
	Yankee Fork	USRSeg		300,000	12/31/21	323,146	290,831	170,831	120,000			8,500	700	7,800		
Totals				2,000,000		1,989,300	1,790,369	1,372,684	240,000	177,685	-	28,400	6,400	21,000	-	1,000
PFH	Pahsimeroi Weir - Integrated ³	PahInt	5/30 - 6/4/22	65,000	1/18/22	81,216	78,780				79,847	-				
	Pahsimeroi Weir - Segregated ²	PahSeg		935,000	1/18/22	181,085	175,652	178,033				-				-
	Hells Canyon Dam ^{1,2}	RapidR		-	1/18/22	523,272	507,574	514,453								1,000
Totals				1,000,000		785,573	762,006	692,486	-	79,847	-	-	-	-	1,000	-
McFH	SFSR Knox Br. - Integrated	SFSRInt	TBD	150,000	1/31/22	118,017	112,117				157,860	26,000		26,000		
	SFSR Knox Br. - Segregated	SFSRSeg		850,000	1/31/22	1,042,289	990,175	603,560	120,000			26,000		26,000		
	Johnson Creek	JohnCr		150,000	1/31/22	144,697	137,463				144,430	2,100				2,100
Totals				1,150,000		1,305,003	1,239,755	603,560	120,000	302,290	-	54,100	-	52,000	-	2,100
Grand Totals				7,150,000		7,507,368	7,067,705	5,824,305	480,000	559,822	-	134,500	38,400	93,000	1,000	3,100

¹ Surplus Rapid River stock eggs were reared at PFH to be released in 2023 at Hells Canyon Dam.

² Due of the low number of fish to be released from this group, CWT will not be placed in these fish and only 1,000 PIT tags will be placed in the Hells Canyon group because the extra stress during tagging would not be beneficial for survival.

³ Integrated fish in excess of the integrated target (65k) will be rolled into the Segregated program.

2.4.2. Early Rearing and Marking Plan for 2022 (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”.

- 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 2022 (BY 2021)				
	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	Option to switch PIT tagging with Pah available	NC
Knox Bridge Segregated (SFSRSeg)	NC	NC	NC	Option to switch PIT tagging with Pah available	NC
<i>Pahsimeroi Fish Hatchery (SOP Section 2.5)</i>					
Pahsimeroi Ponds Integrated (PahInt)	NC	NC	NC	Integrated fish in excess of the integrated target (65k) will be rolled into the Segregated program.	NC

Release Location	Plan for 2022 (BY 2021)				
	Juvenile Fish Health	Fish Feeding	Rearing Conditions	Marking	Meets Release Target
Pahsimeroi Ponds Segregated (PahSeg)	NC	NC for Pahsimeroi Stock - Rapid River Stock may be fed to a smaller target release size.	Rapid River Stock will be reared in Pond 1, Pahsimeroi Stock will be reared in Pond 2.	Due of the low number of fish to be released from this group, CWT and PIT tags will not be placed in these fish because the extra stress during tagging would not be beneficial for survival.	500,000 (100% of target) Rapid River smolts will be transported to HCD in 2023. 240,000 (24% of target) Pahsimeroi Smolts will be released at PFH in 2023.
Hells Canyon (RapidR)	Excess fish from RapidR to fill rearing space due to falling short on PFH brood. Smolts will be released at Hells Canyon Dam in 2023			Due of the low number of fish to be released from this group, CWT will not be placed in these fish and only 1,000 PIT tags will be placed because the extra stress during tagging would not be beneficial for survival.	
<i>Sawtooth Fish Hatchery (SOP Sections 2.6 and 2.8)</i>					
Sawtooth Weir Integrated (USRInt)	NC	NC	NC	NC	Projected release of 177,685 is ~70% of the release goal of 250,000. Adult returns were not enough to meet both broodstock and escapement objectives.
Sawtooth Weir Segregated (USRSeg)	NC	NC	NC	NC	NC
Yankee Fork (USRSeg)	NC	NC	NC	NC	NC
Hells Canyon Dam (RapidR)					

3. Fall Chinook

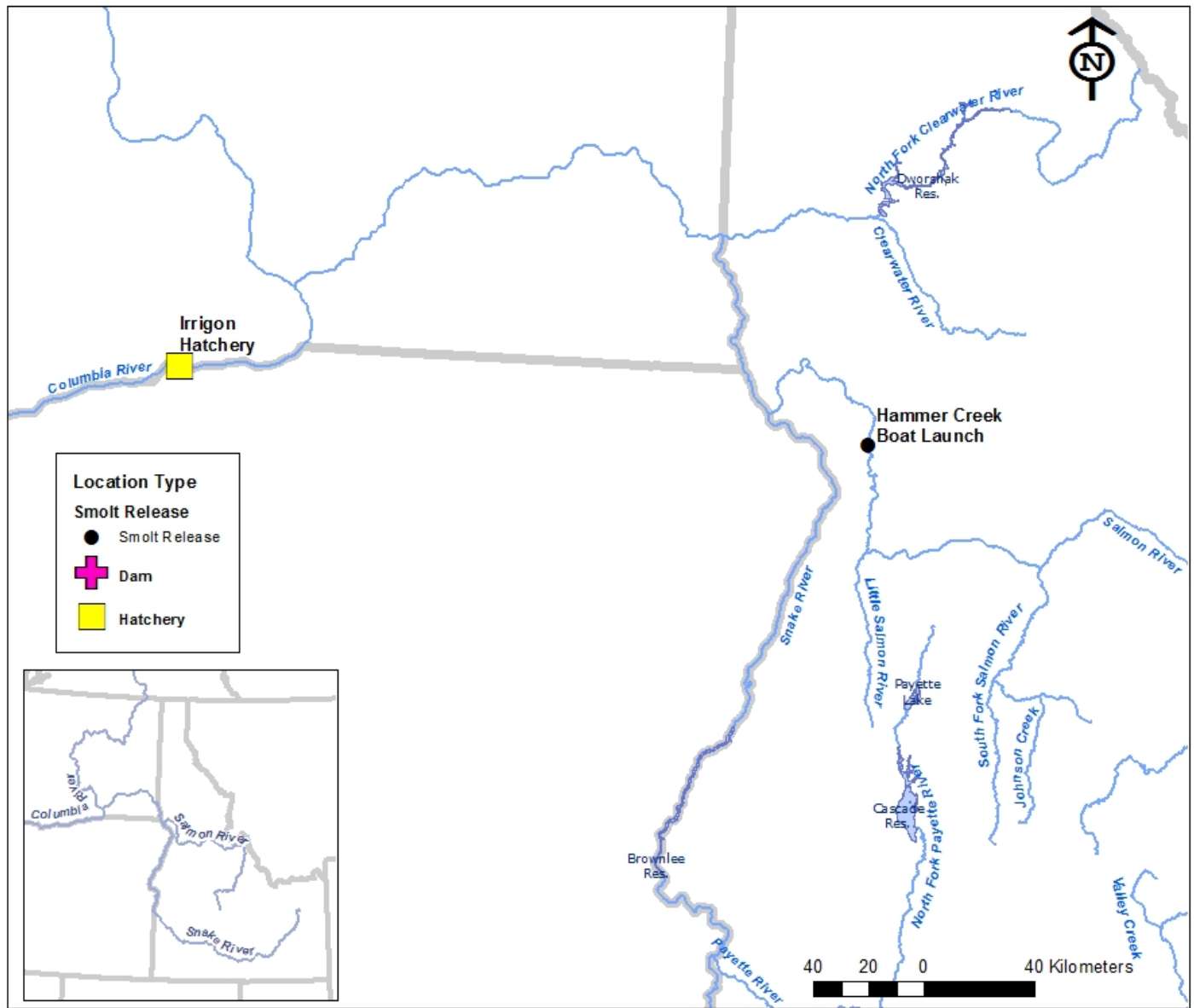


Figure 3.1. Fall Chinook Salmon facilities and smolt release locations.

Table 3.1. Fall Chinook Release Goals.

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

3.1. Releases in 2022 (Sub-Yearling BY 2021)

3.1.1. Releases in 2022 (Sub-Yearling BY 2021) – Totals

Table 3.2a. BY2021 Fall Chinook Sub-yearling Marking and Releases in 2022.

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	5/16, 5/18	1,000,000	915,000		200,000		715,000	4,500

3.1.2. Releases in 2022 (Sub-Yearling 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 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.	Smolt release number reduced due to egg loss that occurred at Lyon’s Ferry Hatchery	NC	NC

3.2. Trap Operations and Production Planning for 2022 (Sub-Yearling BY 2022)

Refer to Lyons Ferry AOP

3.3. Marking and Rearing Plan for 2022 (Sub-Yearling BY 2021)

Refer to Lyons Ferry AOP

4.Sockeye

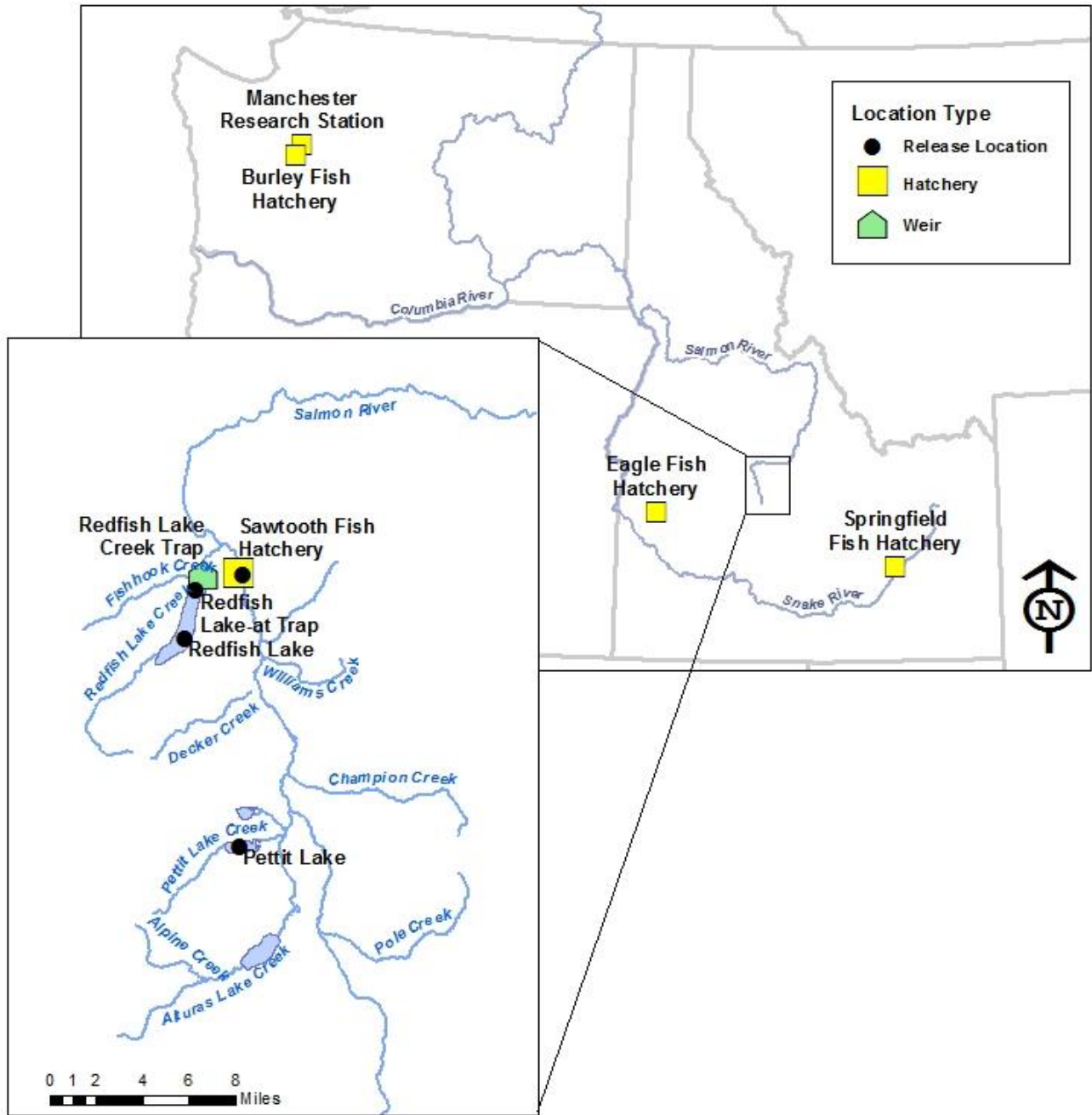


Figure 4.1. Sockeye salmon traps, hatchery facilities, and smolt and adult release locations.

Table 4.1. Sockeye 2022 Release Goals.

Rearing Facility	Release Site	Parent Stock	2022 Smolt Release Goal (BY 2020)
Springfield	Redfish Lake Cr. ¹	Snake R.	1,000,000
Grand Total			1,000,000

Rearing Facility	Release Site	Parent Stock	Brood Year	2022 Captive-Reared Minimum Adult Release Goal ²
NOAA - Burley Creek	Redfish Lake	Snake R.	2017	-
	Redfish Lake	Snake R.	2018	50
	Redfish Lake	Snake R.	2019	100
	Pettit Lake	Snake R.	2019	100
Total				250
Eagle Fish Hatchery	Redfish Lake	Snake R.	2018	-
	Redfish Lake	Snake R.	2019	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

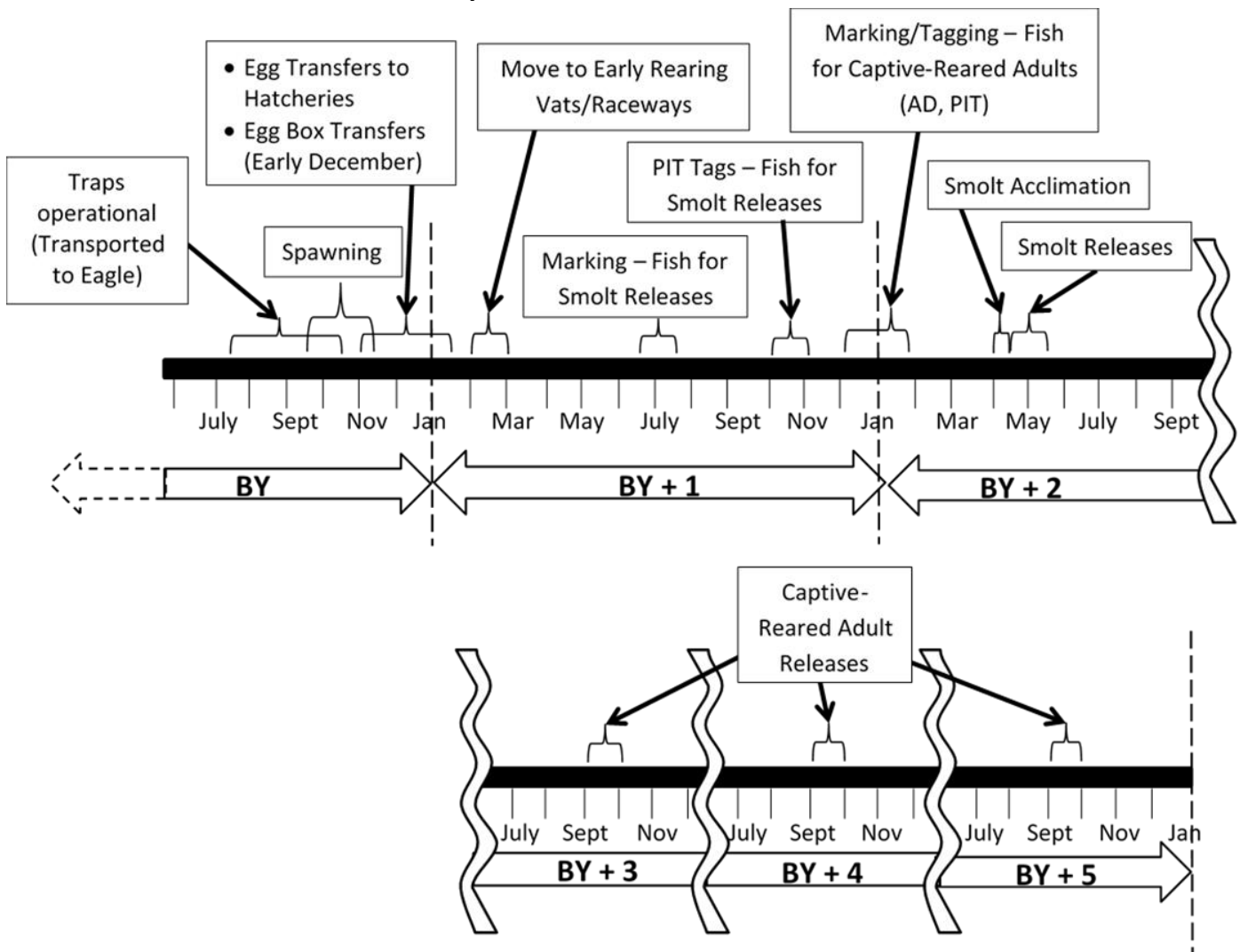


Figure 4.2. Timeline for Sockeye Salmon production. Date ranges are shown to include all facilities' operations.

Sockeye

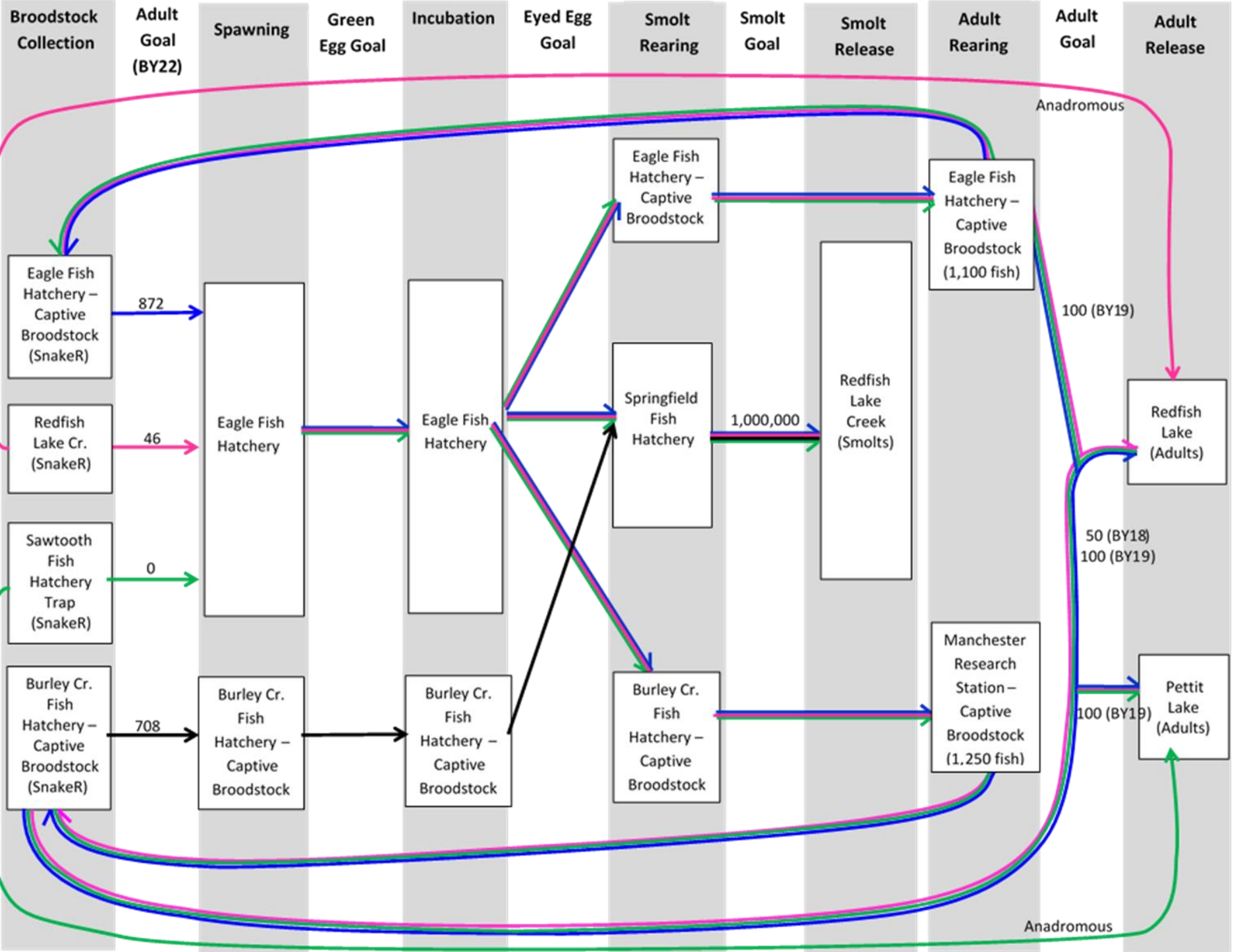


Figure 4.3. Fish and Egg movements for Sockeye. Release numbers reflect 2022 releases. Brood collection numbers are for BY2022.

4.2. Releases in 2022 (Smolt BY20, Captive Adult BY19, BY18, BY17)

4.2.1. Releases in 2022 (Smolt BY20, Captive Adult BY19, BY18, BY17) – Totals

Table 4.2a. Sockeye Captive-Reared Adult Releases in 2022.

Hatchery	Brood year	Release Site	Stock	Likely Release Date	Captive Adult Release Goals ¹
NOAA - Burley Creek	2017	Redfish Lake	Snake R.	Sept.	-
	2018	Redfish Lake	Snake R.	Sept.	50
	2019	Redfish Lake	Snake R.	Sept.	100
	2019	Pettit Lake	Snake R.	Sept.	100
Total					250
Eagle	2018	Redfish Lake	Snake R.	Sept.	-
	2019	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 2020 Sockeye Smolt Releases in 2022.

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.	5/5	1,000,000	910,000	910,000				50,000	40,000	10,000
Grand Total				1,000,000	910,000	910,000	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 2022 (Smolt BY20, Captive Adult BY19, BY18, BY17) – 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 2022		Changes/Conditions that Occurred 2021- Early 2022
	Release Target Smolt BY20, Adult BY19, BY18, BY17	Transport/Release Smolt BY20, Adult BY19, BY18, BY17	Fish/Egg Health BY20, BY19, BY18, BY17
<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
Pettit Lake - Adult Releases (Snake River)	Added Row for Pettit Lake. This is an on-going release of 100 Captive Reared Sockeye. Consistent with SOP 4.3.8		
<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 2022 (BY 2022 for Smolt and Captive Adult Programs)

4.3.1. Trap Operations and Production Planning for 2022 (BY 2022 for Smolt and Captive Adult Programs) – TOTALS

Table 4.3a. Sockeye Spawning for BY 2022.

Site	Stock	Type	Forecast return/ Available Broodstock	Trapping period	Broodstock Need ¹			
					M:F Ratio	Female	Male	Total
Redfish Lake Creek	Snake R.	Anad	49	Jul - Oct	1:1	23	23	46
Sawtooth	Snake R.	Anad	5	Jul - Sep	1:1	0	0	0
Eagle FH ²	Snake R.	Captive	1,100	NA	1:1	436	436	872
Burley Creek ²	Snake R.	Captive	1,250	NA	1:1	354	354	708
Grand Total			2404			813	813	1626

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 2022 (BY 2022 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 2022 (BY 2022)						
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	NC
Pettit Lake Creek Trap (SnakeR)	NC	NC	NC	NC	NC	NC

4.4. Marking and Rearing Plan for 2022 (Smolt BY 2021)

4.4.1. Marking and Rearing Plan for 2022 (Smolt BY 2021)– TOTALS

Table 4.4a. BY 2021 Sockeye Marking in 2022.

Hatchery	Release Site	Stock	Likely Release Date	Release Goals for 2023	Projected Actual Releases					PIT Tags ¹		
					Total	Clip		No Clip		Total # Tags	Funding Source	
						No CWT	CWT	CWT	No CWT		CSS	BPA
Springfield	Redfish Lake Cr.	Snake R.	May 2023	1,000,000	808,000	808,000				50,000	40,000	10,000
Grand Total				1,000,000	808,000	808,000	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 2022 (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. 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. BY2022 Brood Calculator

5.1.1. BY2022 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	1.20%	50%	0.00%	5,150	100.00%	93.00%	92.00%	1,426,920	1,551,000	1,667,742	1,667,742	324	324	648	648	648	2,202	
		Sawtooth Weir (RAS Eval)	SawA	SFH	90,000	1.20%	50%	0.00%	5,150	100.00%	93.00%	92.00%	91,080	99,000	106,452	106,452	21	21	42	42	42	2,169	
		E. Fork Salmon R. - Upper	EFNat	EFRSF	60,000	3.75%	50%	0.00%	5,900	100.00%	91.00%	88.90%	62,250	70,022	76,948	76,948	14	14	28	28	28	2,223	
	MVFH	Sawtooth Weir	SawA	SFH	279,000	1.20%	50%	0.00%	5,150	100.00%	93.00%	84.00%	282,348	336,129	361,429	361,429	71	71	142	142	142	1,988	
		Little Salmon R. - Stinky Sp.	PahA	PFH	186,000	3.75%	50%	0.00%	5,500	100.00%	93.00%	84.00%	192,975	229,732	247,024	247,024	45	45	90	90	90	2,144	
		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	
	NSFH	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	
		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%	37.25%	6,200	96.00%	89.00%	97.00%	300,000	309,278	347,504	361,983	59	59	118	189	189	1,587		
		Snake R. Hells Canyon	OxbA	HCT	550,000	20.00%	50%	37.25%	6,200	96.00%	89.00%	97.00%	660,000	680,412	764,508	796,363	129	129	258	412	412	1,602	
SP/SU CHIN	RRFH	Rapid River Hatchery	RapidR	RRFH	2,500,000	10.00%	50%	7.90%	3,679	92.60%	91.60%	95.60%	2,750,000	2,876,569	3,140,359	3,391,317	922	922	1844	2003	2003	1,373	
		Little Salmon	RapidR	RRFH	150,000	10.00%	50%	7.90%	3,679	92.60%	91.60%	95.60%	165,000	172,594	188,422	203,479	56	56	112	122	122	1,352	
			Hells Canyon	RapidR	RRFH	350,000	10.00%	50%	7.90%	3,679	92.60%	91.60%	95.60%	385,000	402,720	439,650	474,784	130	130	260	283	283	1,360
	SFH	Salmon R. - Co. Line Br. - Integrated	USRInt	SFH	250,000	0.00%	50%	3.00%	4,350	96.00%	94.00%	87.00%	250,000	287,356	305,698	318,436	74	74	148	153	153	1,634	
		Sawtooth Weir - Segregated	USRSeg	SFH	1,450,000	3.00%	50%	3.00%	4,200	96.00%	93.00%	94.00%	1,493,500	1,588,830	1,708,419	1,779,603	424	424	848	875	875	1,707	
	PFH	Yankee Fork	USRSeg	SFH	300,000	3.00%	50%	3.00%	4,200	96.00%	93.00%	94.00%	309,000	328,723	353,466	368,194	88	88	176	182	182	1,698	
		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	
	McFH	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%	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	35,000	0.00%	50.00%	2.00%	2,280	99.00%	81.00%	85.00%	35,000	41,176	50,835	51,349	23	23	46	47	47	745	
		Redfish Lake Creek	Redfish Lake	EFH CB	555,000	0.00%	50.00%	4.00%	2,000	100.00%	75.00%	85.00%	555,000	652,941	870,588	870,588	436	436	872	909	909	611	
		Redfish Lake Creek	Redfish Lake	NOAA CB	410,000	0.00%	50.00%	5.00%	1,700	100.00%	80.20%	85.00%	410,000	482,353	601,438	601,438	354	354	708	746	746	550	
									CELL FORMULAS	G*(1+H)	O/(N)	P/(M)	Q/(L)	ROUNDUP(R/K)	S/(I)-S	T+S	ROUNDUP(U/(1-J))	ROUNDUP(W/(1-I)/(1-J))	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. BY2022 Brood Calculator – EGG RELEASES

PROGRAM INPUTS							HISTORICAL HATCHERY PERFORMANCE METRICS (5-YR AVG)						FORM CALCULATED VALUES									
SPECIES	HATCHERY	RELEASE SITE	STOCK	PREFERRED 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	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.