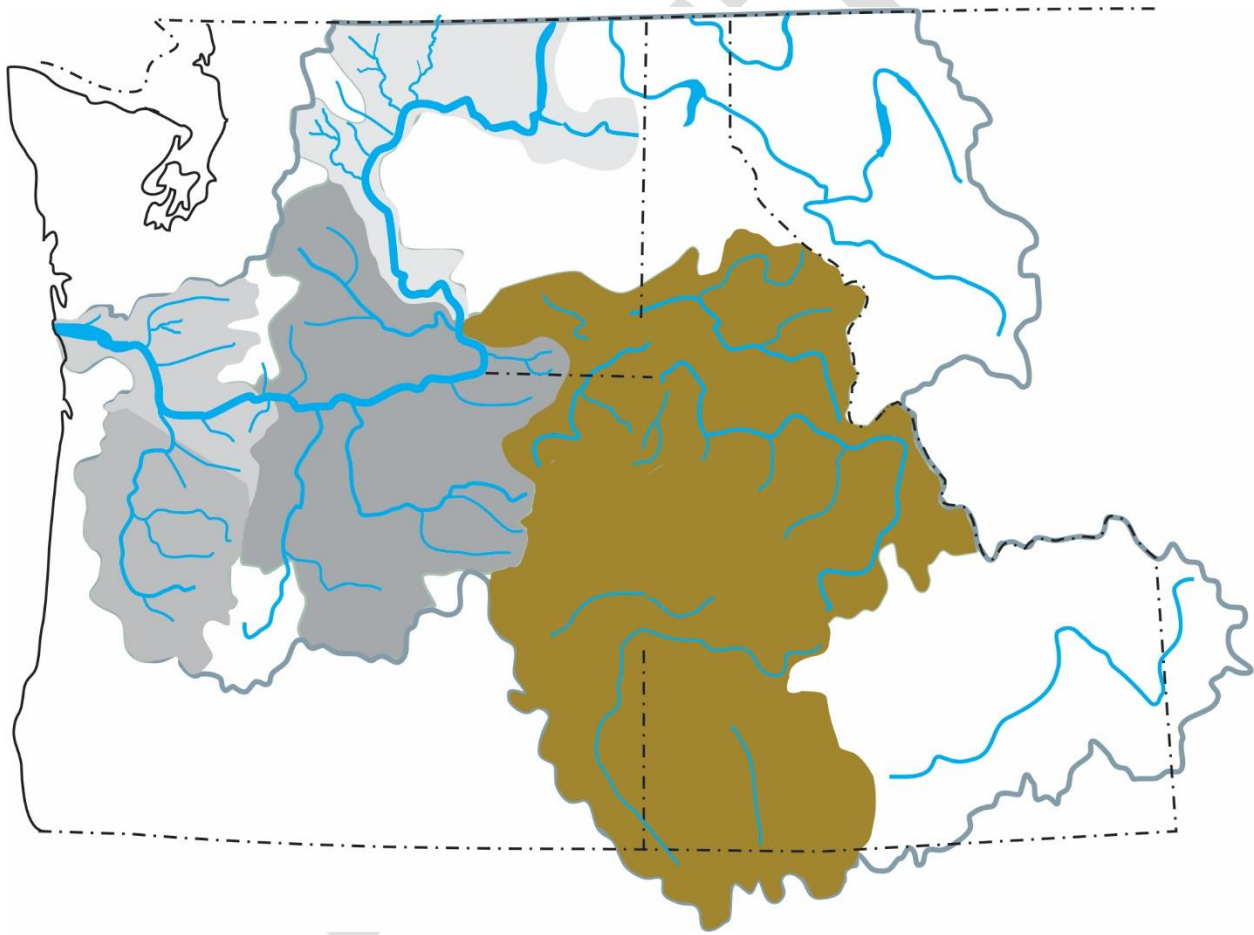


Provisional Quantitative Goal Summaries by Stock

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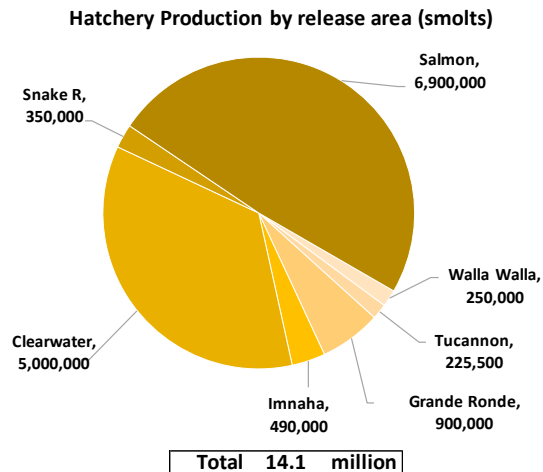
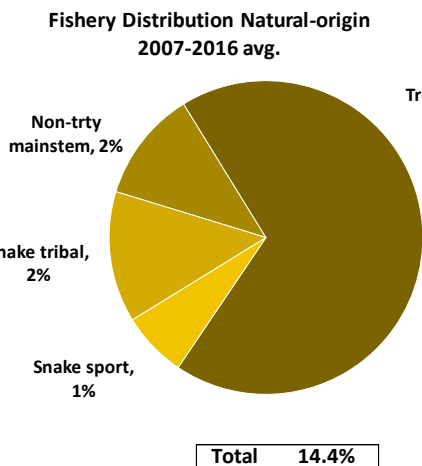
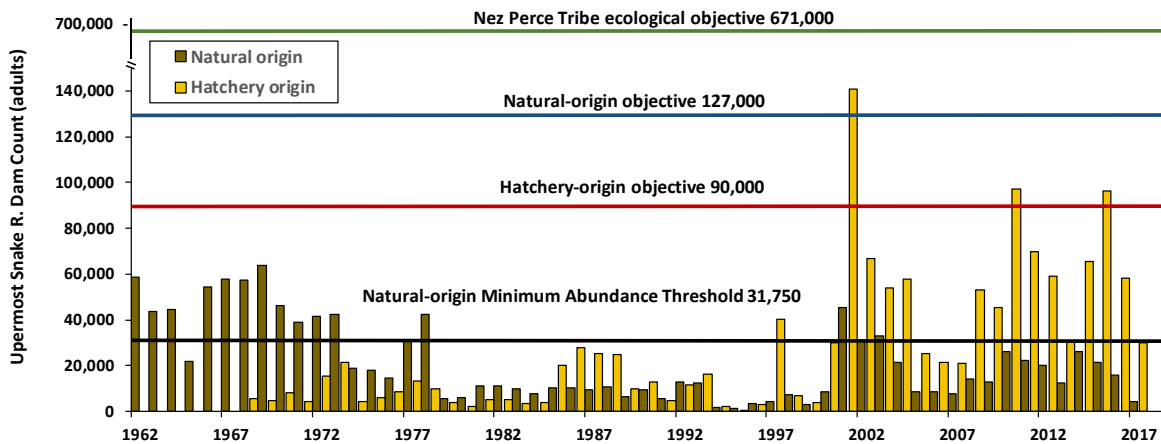
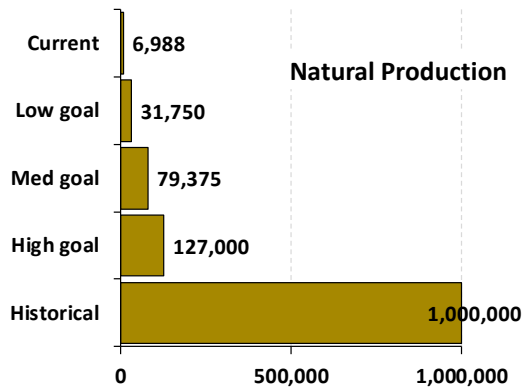
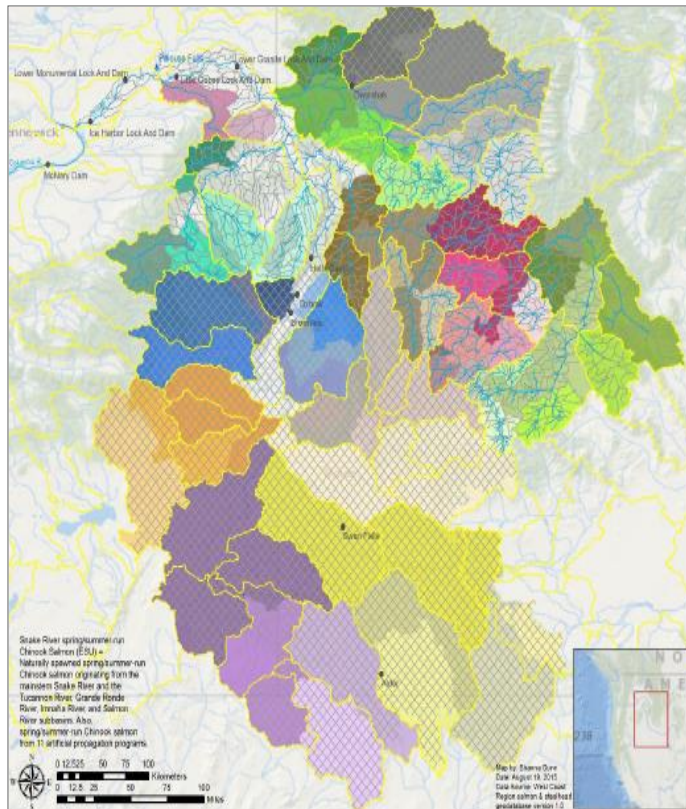
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SNAKE



SNAKE Spring/Summer Chinook ■ ESA: Threatened ■ Life History: Stream rearing

- Inhabits moderate to high elevation areas of major tributaries.
- Historically exceeded one million fish annually in the late 1800s according to the ESA recovery plan.
- Areas upstream from the Hells Canyon Dam complex are not currently accessible. Harvest occurs entirely in freshwater and is much reduced from historical levels.
- Hatchery production is significant.



Natural Production		Abundance (mean)		NPT ecological	Potential Goal Range		
MPG	Population	Recent	1950s	goal	Low	Med	High
		Downstream from Hells Canyon Dam					
L. Snake	Tucannon	240	na	22,000	750	1,875	3,000
	Asotin*	10	0	10,000	500	1,250	2,000
Dry Clearwater	Potlatch*	na	0		500	1,250	2,000
	Lapwai/Big Canyon*	na	0	15,000	750	1,875	3,000
	Lawyer*	na	0	13,000	500	1,250	2,000
	Upper South Fork*	na	0	22,000	1,000	2,500	4,000
Wet Clearwater	N Fk Lower mainstem*	0	0		--	--	--
	N Fk Upper mainstem*	0	0		--	--	--
	Lolo*	na	0	15,000	500	1,250	2,000
	Lochsa*	na	0	24,000	1,000	2,500	4,000
	Meadow*	na	0	8,000	500	1,250	2,000
	Moose*	na	0	12,000	750	1,875	3,000
	Upper Selway*	na	0	18,000	1,000	2,500	4,000
Grande Ronde / Imnaha	Wenaha	420	820	13,000	750	1,875	3,000
	Minam	530	1,276	14,000	750	1,875	3,000
	Catherine	190	969	22,000	750	1,875	3,000
	Lookingglass*	na	na	3,000	500	1,250	2,000
	Lostine/Wallowa	635	926	36,000	1,000	2,500	4,000
	U Grande Ronde	70	111	31,000	1,000	2,500	4,000
	Imnaha	410	2,340	38,000	750	1,875	3,000
	Big Sheep*	na	na		500	1,250	2,000
South Fork Salmon	Little Salmon	na		14,000	500	1,250	2,000
	Secesh	na	828	15,000	750	1,875	3,000
	South Fork Salmon	510	3,270	24,000	1,000	2,500	4,000
	East Fork South Fork	na	537	19,000	1,000	2,500	4,000
Middle Fork Salmon	Chamberlain	840	780	11,000	500	1,250	2,000
	Big	200	620	19,000	1,000	2,500	4,000
	Lower Middle Fork	10	60	6,000	500	1,250	2,000
	Camas	40	240	8,000	500	1,250	2,000
	Loon	60	540	9,000	500	1,250	2,000
	Upper Middle Fork Salmon	80	560	17,000	750	1,875	3,000
	Sulphur	90	280	4,000	500	1,250	2,000
	Bear Valley	510	1,540	16,000	750	1,875	3,000
	Marsh	400	510	7,000	500	1,250	2,000
Upper Salmon	North Fork Salmon	100	290	6,000	500	1,250	2,000
	Lemhi	200	1,160	43,000	2,000	5,000	8,000
	Lower Mainstem Salmon	90	1,210	46,000	2,000	5,000	8,000
	Pahsimeroi	270		35,000	1,000	2,500	4,000
	East Fork Salmon	440	1,320	18,000	1,000	2,500	4,000
	Yankee Fork Salmon River	90	220	7,000	500	1,250	2,000
	Valley	150	450	9,000	500	1,250	2,000
	Upper Mainstem Salmon	390	1,350	22,000	1,000	2,500	4,000
Panther*	13	0	na	750	1,875	3,000	
Subtotal		6,988	22,207	671,000	31,750	79,375	127,000

Natural Production		Abundance (mean)		USRT near-term	Potential Goal Range		
MPG	Population	Recent	Historical	harvest goal**	Low	Med	High
		Upstream from Hells Canyon Dam					
Middle Snake (Pine to Weiser)	Pine Creek	0	na	--	--	500	1,000
	Wildhorse Creek	0	na	--	--	500	500
	Eagle Creek	0	na	--	--	500	500
	Powder River	0	na	--	--	500	1,000
	Burnt River	0	na	--	--	500	750
	Crane Creek/Lower Weiser	0	na	--	--	500	750
	Little Weiser	0	na	500-2,000**	--	500	750
	Upper Weiser	0	na	--	--	500	750
Payette/ Boise	Big/Little Willow Creeks	0	na	--	--	500	750
	Squaw Creek	0	na	--	--	500	750
	North Fork Payette	0	na	2000**	--	500	1,000
	South Fork Payette	0	na	--	--	500	1,000
	Boise River	0	na	500**	--	500	1,000
Malheur	Willow Creek/Lower Malheur	0	na	--	--	500	1,000
	North Fork Malheur	0	na	2,000-3,000**	--	500	1,000
	Upper Malheur	0	na	--	--	500	1,000
Owyhee	Lower Owyhee	0	na	500-1,000**	--	500	1,000
	Little Owyhee	0	na	--	--	500	1,000
	South Fork Owyhee	0	na	--	--	500	1,000
	Upper Owyhee	0	na	3,000-4,000**	--	500	1,000
Upper Snake	Canyon Creek	0	na	--	--	500	1,000
	Lower Bruneau	0	na	--	--	500	750
	Upper Bruneau	0	na	1,000**	--	500	750
	Salmon Falls	0	na	--	--	500	1,000
	Rock Creek (Upper Salmon)	0	na	--	--	500	500
Subtotal		0	na	9,500-13,500**	--	12,500	21,500
Total		6,988	22,207	--	31,750	91,875	148,500

* Functionally extirpated (some of which are being reintroduced).

** Upper Snake River Tribes near-term harvest goal identified for outplanting of unlisted hatchery-origin adults.

SNAKE Spring/Summer Chinook ■ ESA: Threatened ■ Life History: Stream rearing

Hatchery Production		Current Production				Return	Anticipated
Location (Program)	Release	Type	Brood	Smolts	Subyearlings	Goal	production
McCall Hatchery	Johnson Cr	Summer	100	150,000		8,000	same
	S Fk Salmon	Summer	648	1,000,000			same
	Curtis/Cabin Cr.	Summer	175		300,000		same
Pahsimeroi Hatchery	Pahsimeroi	Summer	648	1,000,000		8,000	same
TBD	Panther Cr	Summer					TBD
Carson NFH	Walla Walla	Spring	165	250,000			same
Tucannon/Lyons Ferry	Tucannon	Spring	150	225,500		1,152	same
TBD	Asotin Cr	Spring					TBD
Lookingglass Hatchery	Catherine Cr	Spring	100	150,000		5,820	same
	U Grande Ronde	Spring	165	250,000			same
	Lostine	Spring	165	250,000			same
	lookingglass Cr	Spring	165	250,000			same
	Imnaha	Spring	320	490,000		3,210	same
Rapid River Hatchery	Rapid	Spring	1,621	2,500,000		24,000	same
	Little Salmon	Spring	100	150,000			same
	Hells Cyn Snake R	Spring	230	350,000			same
Sawtooth Hatchery	Salmon R	Spring	972	1,800,000		19,445	same
Crystal Spr/Sawtooth	Yankee Fk Salmon	Spring	200	300,000			same
Nez Perce Tribal Hat.	Meadow (Selway)	Spring	285		400,000	9,135	same
	Lolo Cr	Spring	106		150,000		same
	Newsome Cr	Spring	55		75,000		same
NPTH / Dworshak NFH	Clearwater R	Spring	130	200,000			same
Dworshak NFH	U Selway R	Spring	215		300,000		same
	NF Clearwater R	Spring	690	1,050,000			same
Kooskia Hatchery	Clear Cr	Spring	425	650,000			same
Clearwater Hatchery	Other locations	Spring	260	1,000,000		11,915	same
	Clear Cr	Spring	415	900,000			same
	Red River	Spring	715	1,200,000			same
TBD	Upper Snake	Spring	--	0			4,000,000
Subtotal			12,000	14,115,500	1,225,000	90,677	18,115,500

Fisheries / Harvest		Exploitation rates			Harvest	
Location		Avg.	Limits	Potential	10 yr avg	Potential
Natural	Ocean	--	0%	--	--	--
	Mainstem Non-trty	v Col R.	1.7%	5.5-17%		450
	Mainstem Trty	v Col R.	10.1%		20-60%	2,900
	Snake R Sport	v L Gr	3.5%	0-4%		600
	Snake R Tribes	v L Gr				
Total	v Col R.	14.4%	5.5-19%	20-60%	3,950	128,000
Hatchery	Ocean	--	0%	--	--	--
	Mainstem Non-trty	v Col R.	12.1%	--		10,300
	Mainstem Treaty	v Col R.	10.1%	--	≤70%	8,200
	Snake R Sport	v L Gr	18.0%	--		10,900
	Snake R Tribes	v L Gr	18.0%	--		10,900
Total	v Col R.	47.1%		≤70%	40,300	75,000

Total Return (averages)	Recent (2008-2017)	@ goals		
		Low	Med	High
@ Columbia R Mouth	112,900	141,500	290,000	475,000
Natural	27,400	56,000	192,000	365,000
Hatchery	85,500	85,500	98,000	110,000
% hatchery	76%	60%	34%	23%
Lower Granite Dam	78,100	96,500	188,250	284,000
Natural	17,600	36,000	113,000	194,000
Hatchery	60,500	60,500	75,250	90,000
% hatchery	77%	63%	40%	32%
Escapement*	50,100	66,550	109,375	151,000
Natural	15,300	31,750	79,375	127,000
Hatchery	34,800	34,800	30,000	24,000
% hatchery	69%	52%	27%	16%
Harvest (Columbia basin)	44,250	48,300	105,000	203,000
Natural	3,950	8,000	48,000	128,000
Hatchery	40,300	40,300	57,000	75,000
% hatchery	91%	83%	54%	37%

* Escapement to spawning tributaries and hatchery return.

SNAKE Spring/Summer Chinook ▪ ESA: Threatened ▪ Life History: Stream rearing**Notes - Natural Production**

Distribution: The ICTRT identified 5 MPGs, containing 28 extant populations, 3 functionally extirpated populations, and 1 extirpated population, in the Snake River spring/summer Chinook salmon ESU: (1) Upper Salmon River MPG (8 extant populations and 1 extirpated population); (2) Middle Fork Salmon River MPG (9 extant populations); (3) South Fork Salmon River MPG (4 extant populations); (4) Grande Ronde/Imnaha River MPG (6 extant populations and 2 functionally extirpated populations); (5) Lower Snake River MPG (1 extant population and 1 functionally extirpated population). The South Fork and Middle Fork Salmon Rivers currently support most of the natural spring/summer Chinook salmon production in the Snake River drainage. Historically, Snake River spring/summer Chinook salmon also spawned and reared in areas above the Hells Canyon dams on the Snake River and in the North Fork Clearwater River.

Historical abundance: Historical abundance during the 1950s is documented where available based on stream survey information. However, information or inferences for historical abundance prior to development is not available for most populations. Estimates of production potential identified by the Nez Perce Tribe as ecological goals were included instead for reference purposes.

Current abundance: Current spawning escapement is estimated for most extant populations based on annual ground surveys, which count fish redds in representative portions of the spawning grounds. Spawning ground surveys have been conducted in many areas since the 1950s.

Goals:

- *Low range:* Minimum Abundance Thresholds (MAT) were identified by the Interior Columbia Technical Recovery Team for currently-accessible areas downstream from Hells Canyon Dam. Low range goals were not identified for natural production in currently-blocked areas upstream from Hells Canyon Dam recognizing near-term agreements and challenges in habitat conditions and passage. Near-term objectives recognize needs and opportunities for adult outplants in selected areas to support harvest and assessment.
- *Medium range:* Mid-point between low and high range goals for currently-accessible areas downstream from Hells Canyon Dam for currently-accessible areas downstream from Hells Canyon Dam. Mid-range goals for natural production in currently-blocked areas upstream from Hells Canyon Dam identify basic (minimum) viability levels for all populations.
- *High range:* High range goals are four times the low range goal (i.e., four times MAT) for currently-accessible areas downstream from Hells Canyon Dam. This multiplier is based on estimates of historical spawning escapements during the 1950s, which were deemed by the CBP Snake River regional technical group to be a reasonable representation of the potential production capacity of existing habitats. High-range goals for natural production in currently-blocked areas upstream from Hells Canyon Dam are based on minimum abundance thresholds inferred from rule set developed and applied by the Technical Recovery Teams to similar populations by species (equivalent to a viable population with low extinction risk ($\leq 5\%$ risk of extinction in 100 years)).

Policy Statements regarding goals for extirpated populations upstream of the Hells Canyon Dam complex

Upper Snake River Tribes (USRT): The USRT have developed a plan seeking to restore anadromous fishing opportunities in currently inaccessible areas. Harvest goals of the USRT reflect an immediate need and urgency to restoring tribal fisheries to tributaries upstream of the Hells Canyon Complex to prevent further loss of cultural practices. Due to the risk of further cultural loss, the USRT view progress towards both fisheries and natural production goals as achievable in the near term with subsistence-based harvest programs and cumulative efforts to restore sustainable populations in the long-term. An increase in the geographic scale and magnitude of tribal fisheries in blocked area tributaries can occur immediately, whereas achievement of natural production goals will require a basin-wide approach to juvenile capture and transport. However, achieving both set of goals will not meet the total subsistence need of the USRT member tribes. The total subsistence need can only be met through a dramatic increase in abundance throughout the Columbia River Basin in tandem with restoration of volitional passage to the Snake River. The fisheries goals are therefore calibrated by a current view of feasibility, based on near-term increases in hatchery production and long-term improvements in mainstem survival. Accordingly, tributaries are prioritized based on tribal and public accessibility, importance to the tribes, and by areas of currently suitable habitat at the reach-level. Goals reflect release sizes appropriate for the extent of suitable habitat, in combination with target catch rates.

Fisheries releases initially rely on increased hatchery production, transitioning to a reliance on natural origin returns as reintroduction objectives are met using transport or volitional passage of both juveniles and adults through or around the Hells Canyon Complex based on manager agreement. On-going hatchery supplementation will be necessary through this transition over a twenty-five-year timeframe. The Hells Canyon Complex Fisheries Resource Management Plan (USRT, 2018), the source of the USRT' fisheries goals, outlines in detail the multi-faceted approach to restoring both fisheries and natural production to the Snake River and tributaries upstream of the Hells Canyon Complex. Several principles inform this approach and provide critical context to the fisheries goals: 1) a basin-wide scale of planning and management is necessary to the success of tributary-level releases; 2) fisheries releases require the use of unlisted, hatchery fish; 3) fisheries releases provide opportunities to obtain the empirical information necessary to inform and meet reintroduction objectives; 4) fisheries must transition from a reliance on hatchery production to natural production to sustain fisheries long-term; and 5) while suitable habitat exists in many tributaries, habitat restoration is necessary in many areas including in the mainstem Snake River for volitional passage to occur.

Although other co-managers in the Upper Snake River, including the states of Oregon and Idaho and the Nez Perce and Umatilla Tribes, are aware of USRT goals, they have not formally come to agreement on these at this time.

Idaho Governor's Office:

- 1) The Task Force is advised that no reintroduction of ESA-listed fish to historical habitat upstream of the Hells Canyon Complex is supported by the State of Idaho.
- 2) The Task Force is advised that reintroduction of non-ESA-listed fish to historical habitat upstream of the Hells Canyon Complex needs to be consistent with Idaho state statutes (§ 67-302 and 67-818(5)), which requires approval by both legislative (§67-6302) and executive branches of Idaho government (§67-818(5) and is otherwise prohibited.

- 3) The Task Force is advised that reintroduction of non-ESA-listed fish to historical habitat upstream has to be consistent with Idaho's and Oregon's commitments in the 401 Water Quality Certification Settlement Agreement with Idaho Power Company pertaining to the FERC Application for Hells Canyon Complex Re-licensing (2019 Settlement Agreement).
- 4) Idaho will continue to focus the following funding sources to ESA-listed fish recovery and achieving mitigation objectives in connected areas: BPA's Fish and Wildlife Program, Idaho Fish Accord, NOAA's PCSRF Program, USFW's Lower Snake River Compensation Plan (LSRCP), and/or other federal funding sources intended to implement the 2019 FCRPS BiOp or subsequent FCRPS BiOps. The intent is to ensure recovery of stocks and to meet LSRCP mitigation objectives in connected areas with the above referenced funding sources and not diminish these efforts by diverting from the above referenced funding sources to implement put and take fisheries in historical habitat above Hells Canyon Complex.
- 5) So long as the above conditions are met, Idaho supports put and take fisheries in historical habitat upstream of the Hells Canyon with the following provisions:
 - a. A non-ESA listed hatchery stock must be identified and agreed upon among the parties intending to stock fish in historical habitat upstream of the Hells Canyon Complex with state fisheries managers.
 - b. Locations and timing for stocking of non-ESA listed fish must be identified and agreed upon by the parties intending to stock fish in historical habitat upstream of the Hells Canyon Complex with state fisheries managers.
 - c. Idaho does not support the collection or transport of any juvenile fish that may be produced by adult outplants intended for harvest in the agreed upon put and take fisheries.

State of Oregon:

To be completed

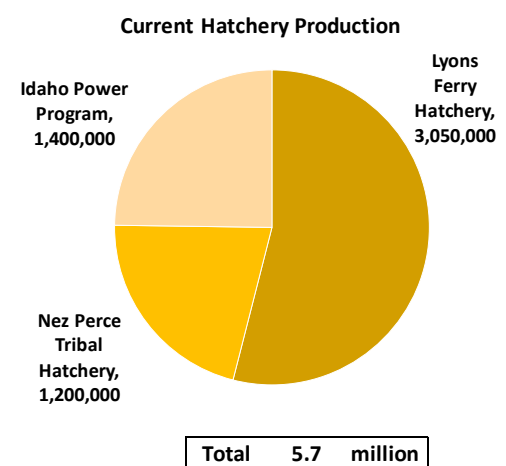
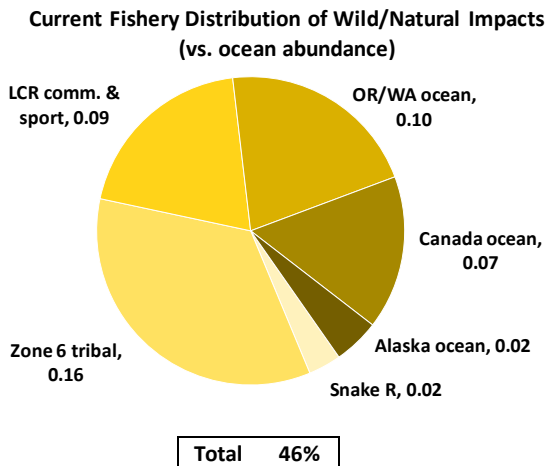
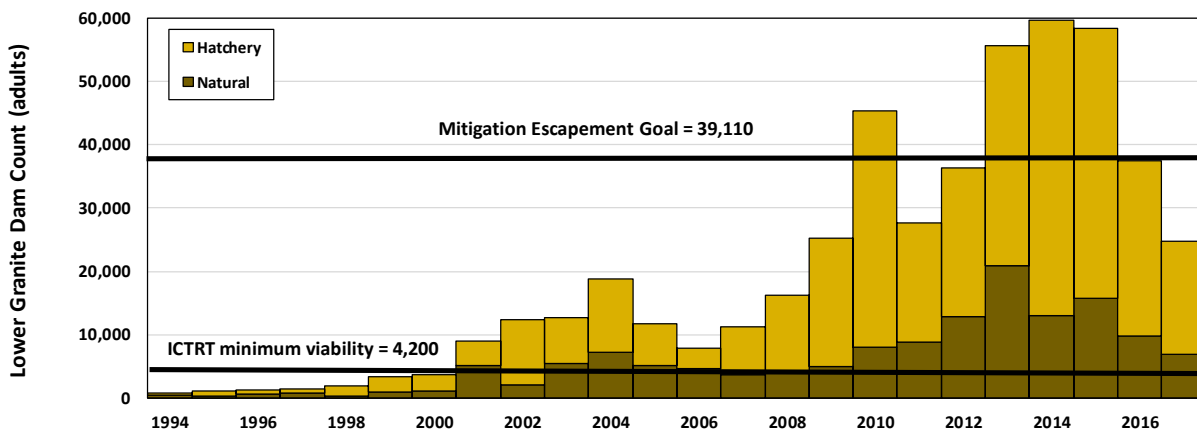
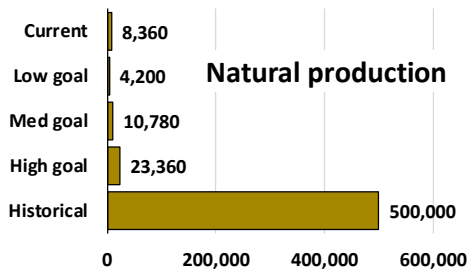
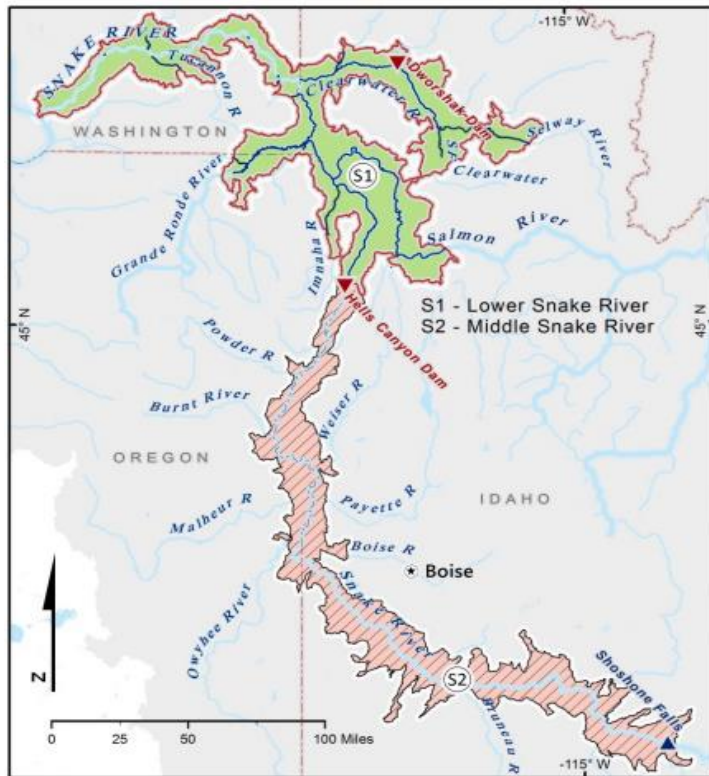
Nez Perce Tribe / Columbia River Treaty Tribes:

To be completed

The Nez Perce Tribe has identified ecological goals which are higher than provisional high range goals currently identified by the Columbia Basin Partnership. The CBP recognizes that provisional goals do not diminish the long-term desire and intent of some Fish and Wildlife Manager's to achieve higher levels of abundance.

SNAKE Fall Chinook ■ ESA: Threatened ■ Life History: Stream rearing

- Currently produced in the Snake River between Lewiston and Hells Canyon Dam and portions of major tributaries.
- Most historical habitat was located upstream from the Hells Canyon Dam complex and is not currently accessible.
- Classified in fishery management as upriver bright fall Chinook along with the healthy Hanford Reach stock.
- Harvest of this stock is significant in the ocean and in freshwater.
- Hatchery production has rebuilt a significant natural return and continues to produce a high proportion of the run.



SNAKE Fall Chinook ▪ ESA: Threatened ▪ Life History: Stream rearing

DRAFT

Natural Production		Abundance (mean)		Potential Goal Range		
MPG	Population	Recent	Historical	Low	Med	High
Snake	Lower Snake R	8,360	500,000	4,200	9,280	14,360
	Middle Snake R	0		--	1,500	9,000
Totals		8,360	500,000	4,200	10,780	23,360

Artificial Production	Current Production		Return	Anticipated
Location (Program)	Brood	Smolts	goal	production
Lyons Ferry Hatchery	2,700	3,050,000		3,050,000
Nez Perce Tribal Hatchery		1,200,000		1,200,000
Idaho Power Program		1,400,000		1,400,000
Subtotal		5,650,000	39,110	5,650,000

Fisheries / Harvest		Exploitation rate			Harvest		
Location	Avg (v ocn)	Avg (v CR)	Goal	Potential	10 yr avg	Potential	
Natural & Hatchery	Ocean (AK/Can)	9.7%	--	--	30-80%	8,100	20,200
	Ocean (WA/OR)	9.8%	--	--		8,200	
	Col sport	9.1%	11.4%	21.5-45%		7,600	31,900
	Col commercial						
	Col treaty	16.0%	19.9%	--	13,300		
	Terminal	1.6%	2.0%	--	1,300		
	Blocked area	--	--	--	--	--	
	Total	46.2%	33.3%	21.5-45%	30-80%	38,500	52,100

Total Return (averages)	Recent avg (2008-2017)	@ Goals		
		Low	Med	High
@ Columbia R Mouth	67,100	58,200	70,100	83,400
Natural	17,900	9,000	20,900	34,200
Hatchery	49,200	49,200	49,200	49,200
% hatchery	73%	85%	70%	59%
@ Bonneville Dam	60,000	52,000	62,500	73,700
Natural	16,000	8,000	18,500	29,700
Hatchery	44,000	44,000	44,000	44,000
% hatchery	73%	85%	70%	60%
@ Lower Granite Dam	38,700	20,784	36,450	42,950
Natural	10,500	5,300	11,700	18,200
Hatchery	28,200	15,484	24,750	24,750
% hatchery	73%	74%	68%	58%
Spawning escapement	31,800	27,508	32,573	37,526
Natural	9,600	4,800	10,700	16,500
Hatchery	22,200	22,708	21,873	21,026
% hatchery	70%	83%	67%	56%
Harvest (Col basin)	22,200	19,000	24,800	31,900
Natural	6,000	2,900	7,500	13,400
Hatchery	16,200	16,100	17,300	18,500
% hatchery	73%	85%	70%	58%
Harvest (total)	38,500	33,100	41,800	52,100
Natural	10,400	5,100	12,600	21,700
Hatchery	28,100	28,000	29,200	30,400
% hatchery	73%	85%	70%	58%

SNAKE Fall Chinook ▪ ESA: Threatened ▪ Life History: Stream rearing

Notes - Natural Production

Distribution: NOAA Fisheries identified two historical populations: the Lower Mainstem Snake and the Middle Mainstem Snake. Only the Lower Mainstem population is extant, due to loss of access to historical spawning habitat above the Hells Canyon Dam complex. Historically, most Snake River fall Chinook salmon spawned in the Middle Mainstem Snake River from its confluence with the Columbia River upstream to Shoshone Falls, with some production likely also coming from nine major tributaries to the Middle Snake River (Salmon Falls Creek and the Owyhee, Bruneau, Boise, Payette, Weiser, Malheur, Burnt, and Powder Rivers). Today, Snake River fall Chinook salmon spawn primarily in the 100-mile reach of the Lower Snake River downstream of Hells Canyon Dam. Lower Granite Reservoir is effectively the downstream limit of spawning, although limited spawning occurs in the tailraces of Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Dams. Substantial numbers of fall Chinook salmon also spawn in the lower mainstem Clearwater River, and some spawn in the lower reaches of the Tucannon, Grande Ronde, Salmon, and Imnaha Rivers.

Historical abundance: Fall Chinook retrospective study by Connor et al. 2016.

Current abundance: Run reconstruction by the Nez Perce Tribe, which incorporates counts and sampling at Lower Granite Dam and adjustments for fallback, hatchery broodstock removals, and harvest above Lower Granite Dam.

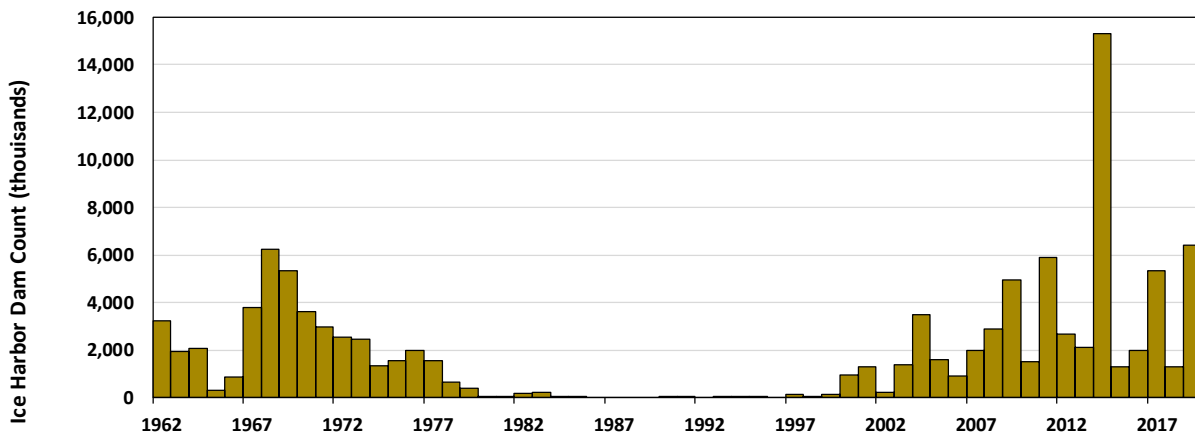
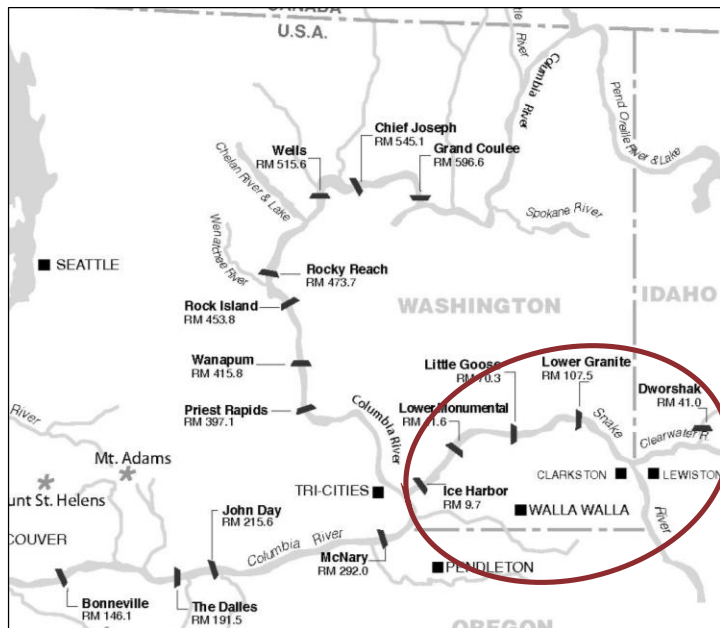
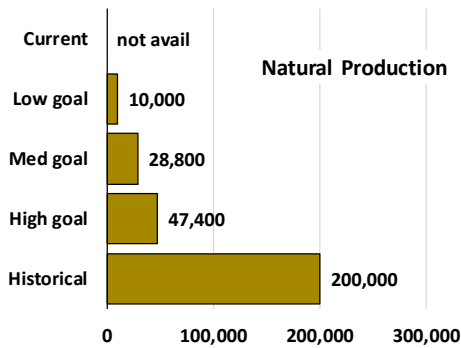
Goals:

- *Low-range:* Based on recovery plan abundance goals under one of the single population recovery scenarios (achieve highly viable status for Lower Snake River population, measured in the aggregate).
- *Medium-range:* Reflect long-term objectives of the Nez Perce Tribe and the Washington Department of Fish and Wildlife as reported in ESA recovery plan.
- *High-range:* Reflect long-term objectives of the Nez Perce Tribe and the Washington Department of Fish and Wildlife as reported in ESA recovery plan.

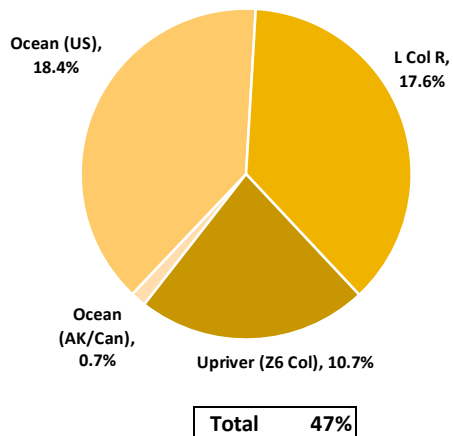
SNAKE Coho

- ESA: Not listed
- Life History: Fallrun, Lake rearing

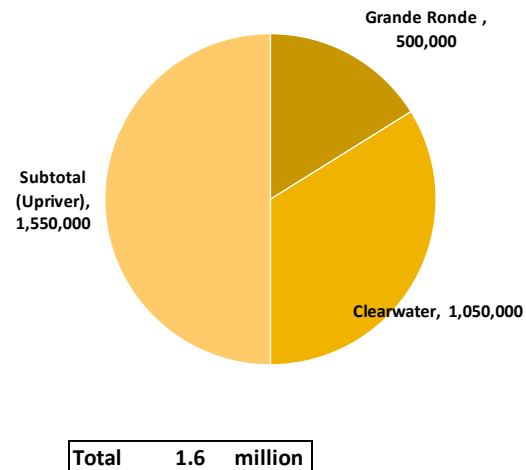
- Coho were historically extirpated upstream from The Dalles Dam but subsequently reintroduced.
- Current run is predominately of hatchery origin but natural production is becoming re-established.



Current Fishery Distribution (Total Harvest)



Hatchery releases (smolts)



SNAKE Coho ■ ESA: Not listed ■ Life History: Fallrun, Lake rearing

Natural Production		Abundance		Potential Goal Range		
(ESU)/(MPG)	Population	Recent	Historical	Low	Med	High
Snake	Walla Walla	na	na	1,100	2,200	3,300
	Tucannon	na	na	1,100	2,200	3,300
	Grande Ronde	na	5,000	2,200	2,900	3,500
	Imnaha	na	na	1,100	2,200	3,300
	Clearwater	na	na	1,100	7,600	14,000
	Salmon	na	na	3,400	11,700	20,000
Total		na	200,000	10,000	28,800	47,400

Hatchery Production		Current Production		Return	Anticipated
Location (Program)		Subyearlings	Yearlings	goal	production
Grande Ronde			500,000		500,000
Clearwater			1,050,000	2,573	1,050,000
Subtotal (Upriver)		0	1,550,000	2,573	1,550,000

Fisheries / Harvest		Exploitation rate				Harvest	
Location		avg (v ocn)	avg (v CR)	Limits	Potential	10-yr avg	Potential
Hatchery / Natural	Ocean (AK/Can)	0.7%	--		≤70%	1,000	32,000
	Ocean (US)	18.4%	--			31,000	
	L Col R	17.6%	22.0%			10,000	27,000
	Upriver (Z6 Col)	10.7%	12.9%			17,000	
	Total		47.3%	34.9%		≤70%	59,000

Upriver Run	Recent avg. (2008-2017)	@ Goals		
		Low	Med	High
@ Columbia R Mouth	128,000	To be completed		
Upriver Run (@ Bonn Dam)	118,000			
Escapement	101,000			
Harvest (Zone 6)	17,000			

SNAKE Coho ▪ ESA: Not listed ▪ Life History: Fallrun, Lake rearing

Notes - Natural Production

Upriver coho are generally defined to include fish returning upstream from Bonneville Dam. Small numbers of coho returning to stream in Columbia Gorge tributaries below and above Bonneville Dam are part of the listed Lower Columbia River coho ESU. Population-specific data for these listed Coho may be found in the lower Columbia coho stock summary. For ease of calculation, small numbers of listed lower Columbia River coho are included in the run reconstruction for upriver coho stock.

Upriver coho also return to areas of the middle Columbia, Upper Columbia and Snake. Numbers for all of these areas are combined on the stock summary for upriver coho.

Distribution: Upriver coho historically returned to tributaries throughout the Middle Columbia, Upper Columbia, and Snake River basins. NOAA Fisheries' project team and regional technical team members tentatively identified at least 15 historical populations. These populations have been largely extirpated. Reintroduction efforts are underway. ESUs or MPGs were not formally identified by technical recovery teams for these upriver coho populations – therefore the project team inferred ESUs and MPGs based on similar delineations in the lower Columbia River.

Historical abundance: Information on historical abundance is limited. Estimates for individual populations are based on a mix of EDT results and expert judgement.

Current abundance: Generally based on tributary dam counts in Umatilla and Yakima. For Wentachee and Methow based on spawning ground surveys occurring as part of the ongoing reintroduction monitoring program.

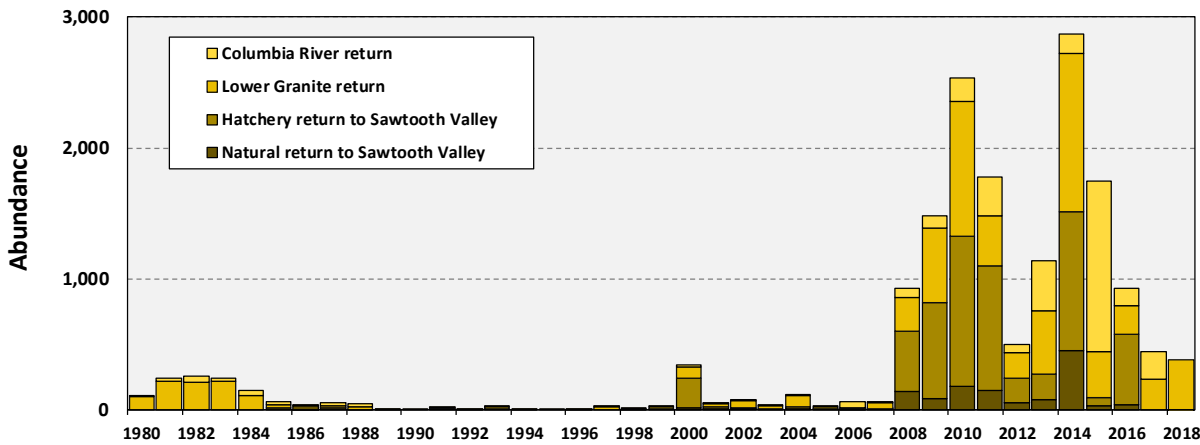
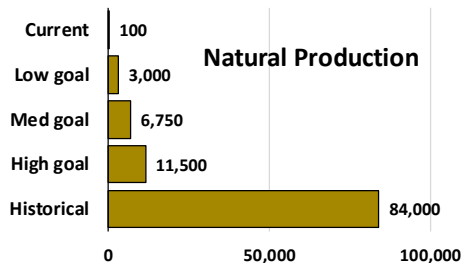
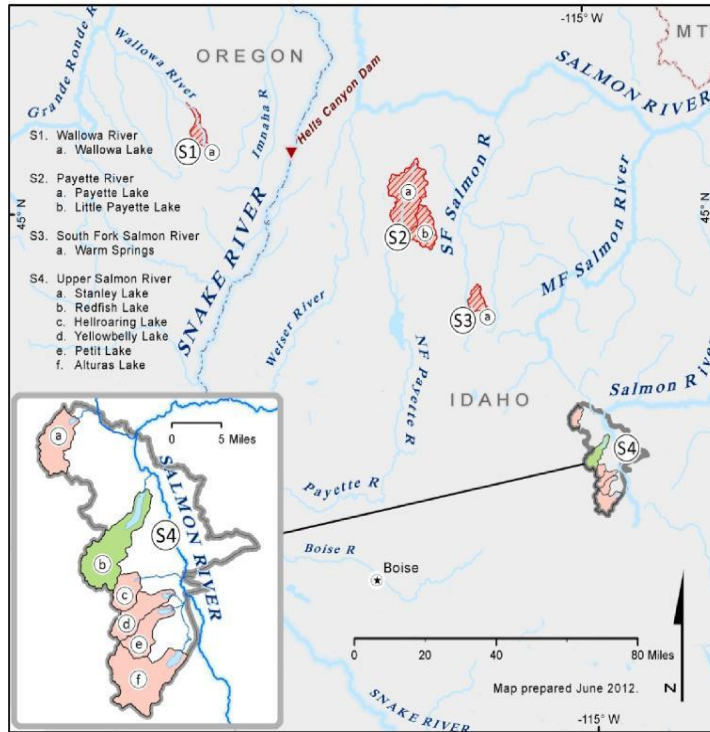
Goals:

- *Low-range:* Based on ICTRT MATs.
- *Medium-range:* Mid-point between low and high goals.
- *High-range:* Generally, three to four times low goal as placeholders.

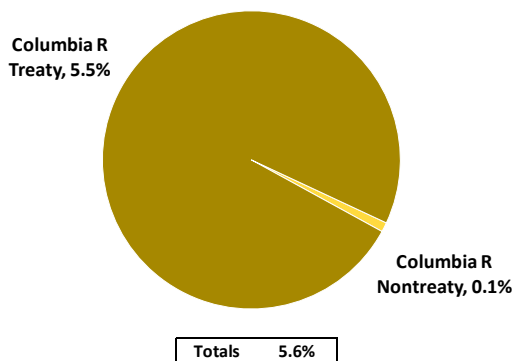
Snake River Sockeye ▪ ESA: Threatened ▪ Life History: Summer run, Lake rearing

Snake River Sockeye **ESA: Endangered** **Life History: Summer run, Lake-rearing**

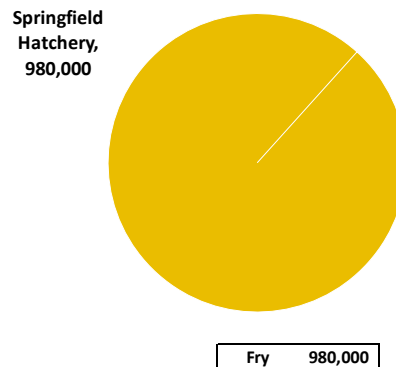
- At listing, only one population remained (Redfish Lake in the Sawtooth Valley).
- Returns dwindled to zero to 10 fish/year.
- Extirpated from five other Stanley Basin Lakes, the Payette system upstream from Hells Canyon, and Wallowa Lake in the upper Grande Ronde.
- An intensive conservation aquaculture program with captive broodstock began in 1991.
- Hatchery fish are currently being released into Redfish, Petit, and Alturus Lakes.



Harvest Distribution
2007-2016 avg.



Hatchery Releases



SNAKE Sockeye ▪ ESA: Threatened ▪ Life History: Summer run, Lake rearing

Natural Production		Abundance (mean)		Potential Goal Range		
ESU/MPG	Population	Recent	Historical	Low	Med	High
Stanley Basin	Redfish Lake	100	25,000	1,000	5,750	9,000
	Alturas Lake	0		1,000		
	Hell Roaring Lake	0		--		
	Stanley Lake	0		--		
	Pettit Lake	0		500		
	Yellow Belly Lake	0		--		
(SF Salmon)	Warm Springs	0		--	--	--
(Payette)	Payette	0	35,000	--	--	--
(Wallowa)	Wallowa Lake	0	24,000	500	1,000	2,500
Totals		100	84,000	3,000	6,750	11,500

Hatchery Production	Current Production			Return	Anticipated
Location (Program)	Brood	Smolts	Fry	goal	production
Springfield Hatchery			980,000	10,000	1,000,000
Totals			980,000	10,000	1,000,000

Fisheries / Harvest		Exploitation rate			Harvest	
Location		Avg.	Limits	Potential	10-yr avg	Potential
Natural & Hatchery	Ocean	0	--	--	--	--
	Mainstem non treaty	0.1%	5-7%	10-40%	1	10,500
	Mainstem Treaty	5.5%			81	
	Terminal	0	--	--	--	
	Total	5.6%	5-7%	10-40%	82	10,500

Total Return	Recent avg (2008-2017)	@ Goals		
		Low	Med	High
@ Columbia R Mouth	1,460	9,870	21,700	42,000
Natural	290	8,700	21,700	42,000
Hatchery	1,170	1,170	0	0
% hatchery	80%	12%	0%	0%
@ Bonneville Dam	1,460	9,870	21,700	41,800
Natural	290	8,700	21,700	41,800
Hatchery	1,170	1,170	0	0
% hatchery	80%	12%	0%	0%
To Snake R (L Granite)	1,130	7,220	14,200	24,100
Natural	210	6,300	14,200	24,100
Hatchery	920	920	0	0
% hatchery	80%	13%	0%	0%
Local Return	752	4,714	9,300	15,900
Natural	138	4,100	9,300	15,900
Hatchery	614	614	0	0
% hatchery	80%	13%	0%	0%
Harvest (Col mainstem)	82	570	3,300	10,500
Natural	12	500	3,300	10,500
Hatchery	70	70	0	0
% hatchery	80%	12%	0%	0%

SNAKE Sockeye ▪ ESA: Threatened ▪ Life History: Summer run, Lake rearing

Notes - Natural Production

Distribution: Historically, sockeye salmon ascended the Snake River to the Wallowa River basin in northeastern Oregon and the Payette and Salmon River basins in Idaho to spawn in natural lakes. Within the Snake River drainage, Wallowa Lake, the Payette Lake basin, and the Stanley Basin are separated by distances that are consistent with those between other Sockeye Salmon ESUs (NMFS 2015). The ICTRT concluded that it is unclear, and currently unresolvable, whether these lake groups were MPGs of the same ESU or separate ESUs (ICTRT 2007). Given this uncertainty, the ICTRT treats the Snake River Sawtooth Valley Sockeye Salmon as a single ESU with a single MPG (ICTRT 2010). Within the Salmon River basin, sockeye salmon spawned in Warm Lake in the South Fork Salmon River basin, as well as in the Sawtooth Valley lakes: Stanley, Redfish, Yellowbelly, Pettit and Alturas Lakes. A smaller Sawtooth Valley lake, Hell Roaring Lake, may have also supported some Sockeye Salmon production. The historical relationships between the different fish populations are not known. All populations except Redfish Lake are extirpated; sockeye are being reintroduced into Pettit and Alturas lakes. The Technical Recovery Team did not formally designate mpgs for populations in the South Fork Salmon or Payette systems but treatment of Upper Columbia River populations, the project team labeled these extirpated sockeye as separate mpgs - parentheses are used to designate these mpgs as assumed for the purposes of this exercise.

Historical abundance: From IDFG website. Little information on historical abundance exists.

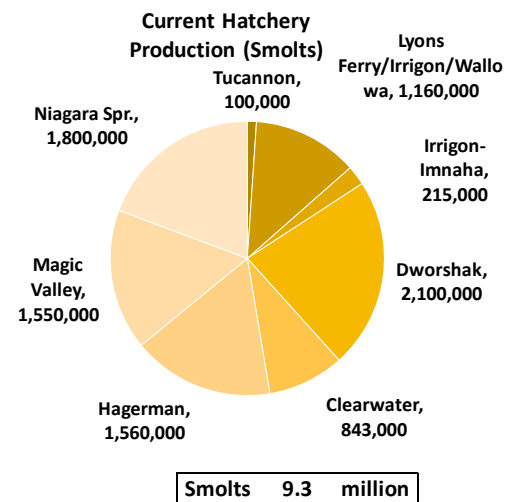
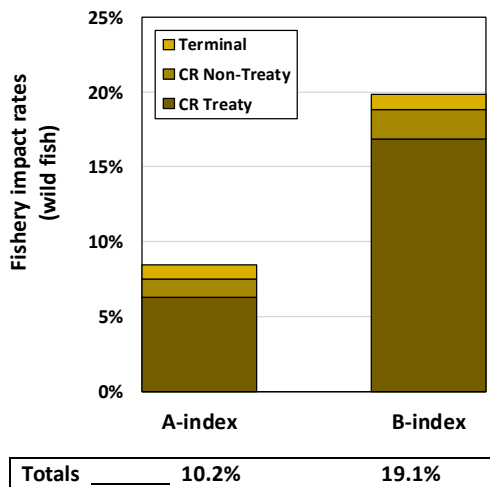
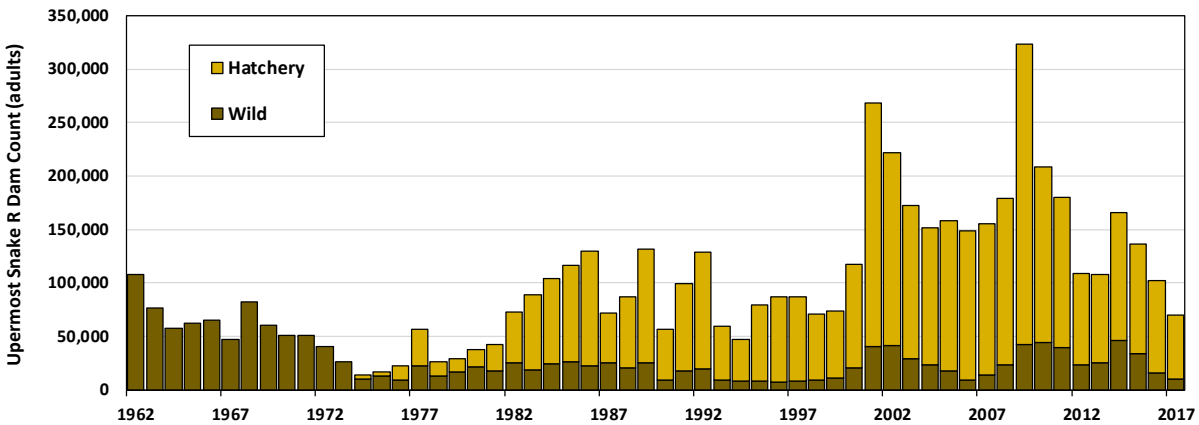
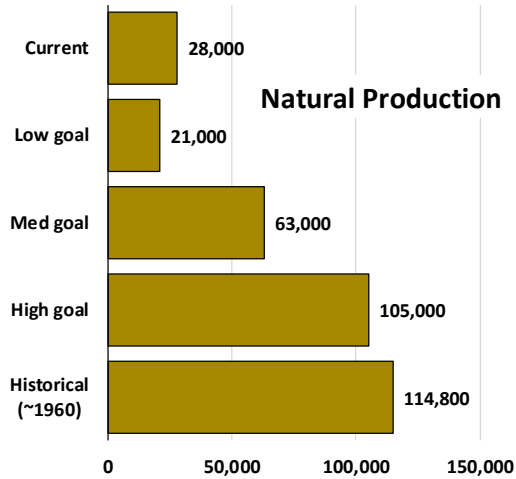
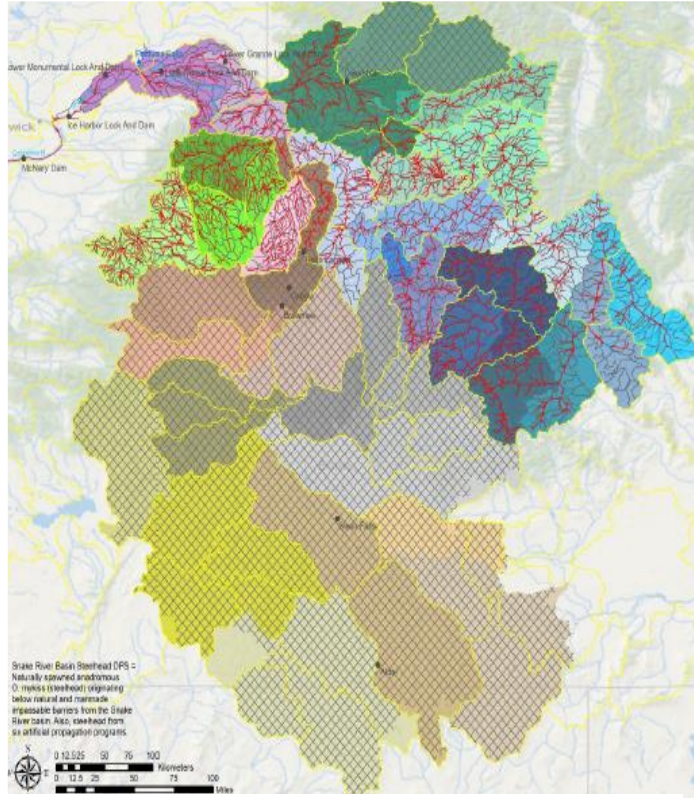
Current abundance: Fish traps and spawning surveys in the Stanley Basin.

Goals:

- *Low range:* ESA recovery plan (for Redfish, Alturas, and Petit Lake populations). Equivalent values identified for unlisted Wallowa Lake population in Oregon.
- *Medium range:* Mid-point between low and high goals.
- *High range:* IDFG reference for Stanley Basin.

SNAKE Summer Steelhead ■ ESA: Threatened ■ Life History: Stream rearing

- Inhabit moderate to high elevation areas of major tributaries.
- Areas upstream from the Hells Canyon Dam complex are not currently accessible. Harvest occurs entirely in freshwater and is much reduced from historical levels.
- Hatchery production is significant.



SNAKE Summer Steelhead ▪ ESA: Threatened ▪ Life History: Stream rearing

Natural Production		Abundance (mean)		NPT ecological	Potential Goal Range		
MPG	Population	Recent	~1960	goal	Low	Med	High
		Downstream from Hells Canyon Dam					
Lower Snake	Asotin Creek	610	1,700	15,000	500	1,500	2,500
	Tucannon River	640	3,400	15,000	1,000	3,000	5,000
Cleanwater	Lower Mainstem	na	43,200	45,000	1,500	4,500	7,500
	Lochsa River	340		37,000	1,000	3,000	5,000
	Selway River			55,000	1,000	3,000	5,000
	Lolo Creek	na		7,000	500	1,500	2,500
	North Fork	na			--	--	--
	South Fork	2,040		25,000	1,000	3,000	5,000
Grande Ronde	Lower Mainstem	610	15,900	38,000	1,000	3,000	5,000
	Upper Mainstem	2,630		81,000	1,500	4,500	7,500
	Joseph Creek	2,330		24,000	500	1,500	2,500
	Wallowa River	1,190		41,000	1,000	3,000	5,000
Imnaha	Imnaha River	na	4,000	21,000	1,000	3,000	5,000
Salmon	Chamberlain Creek	na	35,200	13,000	500	1,500	2,500
	East Fork Salmon River	na		19,000	1,000	3,000	5,000
	Lemhi River	na		22,000	1,000	3,000	5,000
	Little Salmon River	na		16,000	500	1,500	2,500
	Middle Fk Lower Mainstem	2,470		31,000	1,000	3,000	5,000
	Middle Fk Upper Mainstem			28,000	1,000	3,000	5,000
	North Fork	na		6,000	500	1,500	2,500
	Pahsimeroi River	na		18,000	1,000	3,000	5,000
	Panther Creek	na		13,000	500	1,500	2,500
	Upper Mainstem	na		24,000	1,000	3,000	5,000
	Secesh River	1,220		6,000	500	1,500	2,500
	South Fork			2,000	1,000	3,000	5,000
	Other	Misc L Snake tribs		--	11,400	--	--
Subtotal		28,000	114,800	602,000	21,000	63,000	105,000

Natural Production		Abundance (mean)		USRT near-term	Potential Goal Range			
MPG	Population	Recent	Historical	harvest goal**	Low	Med	High	
		Upstream from Hells Canyon Dam						
Hells Canyon	Hells Canyon	0	na	--	--	500	1,000	
	Powder River	0	na	--	--	500	1,500	
	Burnt River	0	na	--	--	500	1,000	
	Weiser River	0	na	500-2,000**	--	500	1,500	
Payette Boise	Lower Payette	0	na	2,000**	--	500	1,000	
	North Fork Payette	0	na		--	500	1,000	
	South Fork Payette	0	na		--	500	1,000	
	Boise River	0	na		500**	--	500	1,500
Malheur Owyhee	Lower Malheur	0	na	2,000-3,000**	--	500	1,000	
	Upper Malheur	0	na		--	500	1,500	
	Lower Owyhee	0	na		500-1,000**	--	500	1,500
	Upper Owyhee	0	na		3,000-4,000**	--	500	1,500
Bruneau Salmon Falls	Bruneau	0	na	1,000**	--	500	1,500	
	Canyon Creek	0	na	--	--	500	1,000	
	Salmon Falls/Rock Creek	0	na	--	--	500	1,500	
Subtotal		0	na	9,500-13,500	0	7,500	19,000	

Total	28,000	114,800	--	21,000	70,500	124,000
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** Upper Snake River Tribes near-term harvest goal identified for outplanting of unlisted hatchery-origin adults.

SNAKE Summer Steelhead ▪ ESA: Threatened ▪ Life History: Stream rearing

Artificial Production Location (Program)	Type	Current Production			Return Goal	Anticipated production
		Brood	Smolts	Subyearlings		
Tucannon	A	60	100,000		4,656	100,000
Lyons Ferry/Irrigon/Wallowa	A	472	1,160,000			1,160,000
Irrigon-Imnaha	A	132	215,000		11,184	215,000
Dworshak	B	872	2,100,000		60,264	2,100,000
Clearwater	B	452	843,000			843,000
Hagerman	A	878	1,560,000			1,560,000
Magic Valley	A	812	1,550,000			1,550,000
Niagara Spr.	B	1,152	1,800,000			1,800,000
Sawtooth/Pahsimeroi	A/B	455		1,000,000		1,000,000
Subtotal		5,285	9,328,000	1,000,000	88,100	10,328,000

Note: Return goal of 60,264 = sum of LSRCP, ACOE and IPC goals

Fisheries / Harvest		Exploitation rate (v Col R run)				Harvest	
Location		A-run avg	B run avg	Limits	Potential	10 yr avg	Potential
Natural	Ocean	--	--	--	--	--	--
	Mainstem Non-treaty	1.9%	2.2%	15-22%	20-50%	700	43,900
	Mainstem Treaty	6.3%	14.9%			2,900	
	Snake R (below L. Granite Dam)			<2%			600
	Snake R (abv L. Granite Dam)	2.0%	2.0%				
Total		10.2%	19.1%	17-22%	20-50%	4,200	43,900
Hatchery	Ocean	--	--	--	--	--	--
	Mainstem Non-treaty	14.3%	15.5%	≤70%	≤70%	28,600	141,900
	Mainstem Treaty	6.7%	15.2%			15,500	
	Snake R (below L. Granite Dam)		4.1%	≤70%		8,400	77,200
	Snake R (abv L. Granite Dam)		38.0%				
Total		63%	73%	≤70%	≤70%	129,700	141,900

Total Return	Recent 10-yr avg (2007-2016)			@ Goals		
	A-run	B-run	Total	Low	Med	High
@ Columbia R Mouth	196,100	45,200	241,300	241,300	323,500	415,600
Natural	31,800	6,100	37,900	37,900	120,100	212,200
Hatchery	164,300	39,100	203,400	203,400	203,400	203,400
% hatchery	84%	87%	84%	84%	63%	49%
@ Bonneville Dam	185,900	44,400	230,300	230,300	300,500	380,100
Natural	31,400	6,000	37,400	37,400	0	0
Hatchery	154,500	38,400	192,900	192,900	0	0
% hatchery	83%	86%	84%	84%	0%	0%
@ Lower Granite Dam	138,600	28,100	166,700	166,700	166,700	166,700
Natural	26,300	4,500	30,800	30,800	0	0
Hatchery	112,300	23,600	135,900	135,900	0	0
% hatchery	81%	84%	82%	82%	0%	0%
Spawning Escapement						
Natural				20%		0
Hatchery						
% hatchery						
Harvest (total)			133,900	134,000	161,100	185,800
Wild/Natural			4,200	4,300	19,200	43,900
Hatchery			129,700	129,700	141,900	141,900
% hatchery			97%	97%	88%	76%

To be completed

SNAKE Summer Steelhead ▪ ESA: Threatened ▪ Life History: Stream rearing**Notes - Natural Production**

Distribution: The ICTRT identified nine historical MPGs in the Snake River Basin steelhead DPS. Five of the MPGs are extant and support 24 extant populations: Lower Snake River MPG (two populations); the Grande Ronde MPG (four populations); the Imnaha River MPG (one population); the Clearwater River MPG (five extant populations and one extirpated); and the Salmon River MPG (11 extant populations and one extirpated population). Historically, Snake River steelhead also spawned and reared in areas above the Hells Canyon Complex on the Snake River and in the North Fork Clearwater River. Steelhead are currently blocked from historical habitat in this area, but the ICTRT identified four historical MPGs in this area.

Historical abundance: Near-term historical abundance for the total return downstream from Hells Canyon is based on estimated production in the early 1960s, as identified in the Lower Snake River Compensation Plan. However, information or inferences for historical abundance prior to development is not available for most populations. Estimates of production potential identified by the Nez Perce Tribe as ecological goals were included instead for reference purposes.

Current abundance: Identified only for aggregate returns to Lower Granite Dam. Few population-specific estimates available (due to difficulty of spawning surveys –e.g., extended spawn timing, inaccessible spawning areas in winter). Redd count indices are available for some steelhead populations but have not been translated into fish numbers. Parr density is also available but has not been related to corresponding adult abundance. EDT model-based estimates of current production potential are documented for populations where available.

Goals:

- *Low range:* Minimum Abundance Thresholds (MAT) identified by the Interior Columbia Technical Recovery Team.
- *Medium range:* Midpoint between low and high goals
- *High range:* High range goals are 5x the low range goal. This multiplier is based on estimates of historical dam counts during the 1950s, which were deemed by the CBP Snake River regional technical group to be a reasonable representation of the potential production capacity of existing habitats.

See previous explanations regarding goals for extirpated populations upstream from Hells Canyon