

Big Table for Fall Chinook Salmon. Management metrics and ranges of means for the most recent five years for hatchery- and natural-origin data that are available from ISIT, RMIS, Tacoma Power, and WDFW and FHMP adult goals.

*Suggested recovery target for Stabilizing population.

Recovery Targets										
Lower Cowlitz River		Upper Cowlitz River		Last 5 Years Adult Mean				FHMP Adult Goal		
3,000	1,000*	1,000*	1,000*	Hatchery		Natural		Source(s) of Current Data	Hatchery	Natural
Metrics				Min	Max	Min	Max			
Data to be Collected (Numbers)										
Mature Returns										
Totals	Total Survivors to Maturity			?		?			23,372	11,938
	Total Escapement to Cowlitz River			?		?			7,606	9,017
Harvest	Fishery Location	Ocean	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Ocean	7,157		4,542		ISIT	7,044	4,292
		Columbia River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Columbia River	3,170		1,923		ISIT	3,122	1,818
		Lower Cowlitz River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	2,527		189		ISIT		
			Total Lower Cowlitz River	2,527		189		ISIT	2,527	189
		Above Mayfield Dam	Cispus River	?		?				
			Upper Cowlitz River	209		0		ISIT		
			Tilton River	208		142		ISIT		
Total Above Mayfield Dam	417		143		ISIT	417	143			
Fishery Type	Commercial	?		?						
	Tribal	?		?						
	Sport	?		?						
Total Harvest				13,271		6,797		ISIT	13,110	6,441

Stray -ing	Stray Origin	Cowlitz River						0	0
		Population	Outside Cowlitz Basin	?	?	?	?	0	0
		Other Population Strays in Cowlitz River		?	?			0	0
Trapping	Lower Cowlitz Subbasin Tributary Traps	Delameter Creek	Released Below Weir	?	?				0
			Released Above Weir	?	?				
			Kept for Broodstock	?	?				
			Mortalities	?	?			0	0
			Killed	?	?				0
			Total Caught	?	?				
		Lacamas Creek	Released Below Weir	?	?				0
			Released Above Weir	?	?				
			Kept for Broodstock	?	?				
			Mortalities	?	?			0	0
			Killed	?	?				0
			Total Caught	?	?				
		Olequa Creek	Released Below Weir	?	?				0
			Released Above Weir	?	?				
			Kept for Broodstock	?	?				
			Mortalities	?	?			0	0
			Killed	?	?				0
			Total Caught	?	?				
		Ostrander Creek	Released Below Weir	?	?				0
			Released Above Weir	?	?				
			Kept for Broodstock	?	?				
			Mortalities	?	?			0	0
			Killed	?	?				0
			Total Caught	?	?				
Cowlitz Salmon Hatchery	Hatchery Broodstock Collected		1,634	1,821	0	79	ISIT, TPU, WDFW	1,845	2,254
	Released Below Dams		0	204	0	11	TPU, WDFW	0	0
	Released Above Dams	Upper Cowlitz Subbasin	1,381	1,640	3	62	ISIT, TPU, WDFW	0	0
		Tilton Subbasin	809	3,502	2,631	2,693	TPU, WDFW	2,268	4,115
	Mortalities		1	167	1	20	TPU, WDFW	<10%	<10%
	Surplus (Food Bank, Outplant, Nutrient Enhancement, etc)		658	709	0	0	TPU, WDFW	0	0
	Total		4,322	7,097	2,776	2,808	TPU, WDFW	4,570	7,077

Nature (pre-spawning)	Location	Below Dams	Lower Cowlitz River	Cowlitz River		1,203		3,317		ISIT	1,429	3,333
			Out-of-Program Strays	?	?	?	?		0	0		
		Above Dams	Upper Cowlitz/Cispus Rivers		1,296		2		ISIT	1,100	0	
			Tilton River		647		2,165			1,429	3,333	
		Total			3,146		5,485		ISIT	2,857	6,667	
Hatchery Production												
Spawners	Integrated Hatchery Program	Prespawn Mortalities		?	?	?	?		<92	<113		
		Killed, Not Spawned		?	?	?	?		0	0		
		Spawned		?	?	?	?		1,753	2,142		
	Segregated Hatchery Program	Prespawn Mortalities		?	?	?	?		0	0		
		Killed, Not Spawned		?	?	?	?		0	0		
		Spawned		?	?	?	?		750	0		
	Total Hatchery	Prespawn Mortalities		156	234	6	27	ISIT, WDFW	<92	<113		
		Killed, Not Spawned		?	?		?		0	0		
		Spawned		1,435	1,628	60	228	ISIT, WDFW	1,753	2,142		
Offspring - Rearing and Release	Integrated Hatchery Program	Green Eggs Collected (Fecundity)	Mean	?	?	?	?		2,289	2,289		
			Total	?	?	?	?		4,456,856			
		Eyed Eggs (Eyed Fecundity)	Mean	?	?	?	?		2,081	2,081		
			Total	?	?	?	?		4,051,688			
		Fry	Fry Produced	Number	?	?	?	?		3,858,750		
				Size	?	?	NA	NA		?		
			Fry Released	Number	?	?	NA	NA		0		
				Size	?	?	NA	NA		NA		
			Parr Produced	Number	?	?	NA	NA		3,675,000		
				Size	?	?	NA	NA		?		
		Parr Released	Number	?	?	NA	NA		0			
			Size	?	?	NA	NA		NA			
		Smolts	Smolts Produced	Number	?	?	NA	NA		3,500,000		
				Size	?	?	NA	NA		?		
		Smolts Released	Number	484,927	1,257,737	NA	NA	ISIT, WDFW	3,500,000			
			Size	?	?	NA	NA		?			
		Total Offspring Released			484,927	1,257,737	NA	NA	ISIT, WDFW	3,500,000		
		Marks and Tags	Type: CWT	Number	?					700,000		

Offspring - Rearing and Release

Segregated Hatchery Program	Green Eggs Collected (Fecundity)	Mean	?	?	NA			0	NA	
		Total	?	?	NA			0		
	Eyed Eggs (Eyed Fecundity)	Mean	?	?	NA			0	NA	
		Total	?	?	NA			0		
	Fry	Fry Produced	Released	?	?	NA			0	NA
			Number	?	?	NA			0	
		Fry Released	Size	?	?	NA			?	
			Number	?	?	NA			0	
	Parr	Parr Produced	Size	?	?	NA			?	
			Number	?	?	NA			0	
		Parr Released	Size	?	?	NA			?	
			Number	?	?	NA			0	
	Smolts	Smolts Produced	Size	?	?	NA			?	
			Number	?	?	NA			0	
		Smolts Released	Size	?	?	NA			?	
Number			2,459,056	2,464,983	NA		ISIT, WDFW	0		
Total Offspring Released		Size	?	?	NA			?		
Marks and Tags		Type: CWT	Number	795,610		NA	RMIS	0		
Total Hatchery Programs	Green Eggs Collected (Fecundity)	Mean	8,828				WDFW	2,289	2,289	
		Total	4,013,974	4,121,383	146,209	572,528	ISIT, WDFW	4,456,856		
	Eyed Eggs (Eyed Fecundity)	Mean	?	?	?	?		2,081	2,081	
		Total	?	?	?	?		4,051,688		
	Fry	Fry Produced	Released	?	?	?	?	0	0	
			Number	?	?	NA			3,858,750	
		Fry Released	Size	?	?	NA			?	
			Number	?	?	NA			0	
	Parr	Parr Produced	Size	?	?	NA			NA	
			Number	?	?	NA			3,675,000	
		Parr Released	Size	?	?	NA			?	
			Number	?	?	NA			0	
	Smolts	Age-2 Smolts Produced	Size	?	?	NA			?	
			Number	?	?	NA			3,500,000	
		Age-2 Smolts Released	Size	?	?	NA			?	
Number			2,937,151	2,962,151	NA		ISIT, WDFW	3,500,000		
Total Offspring Released		Size	?	?	NA			?		
Marks and Tags		Type: CWT	Number	795,610		NA	RMIS	700,000		

Natural Production

Below Dams	Lower Cowlitz River Mainstem	Spawners	Prespawn Mortalities in Nature	Lower Cowlitz River	?	?	?	?		<176	<333
			Out-of-Program Strays		?	?	?	?		0	0
		Spawners in Nature	Lower Cowlitz River	1,082		2,986		ISIT		1,286	3,000
			Out-of-Basin Strays	?	?	?	?		0	0	
		Total Eggs Laid		?	?	?	?		?	?	
		Smolts Produced		?					NA	60,000	
		Offspring	Smolts Trapped & Released	Number Trapped	NA					NA	NA
				Number Released	NA					NA	NA
			Type of Mark/Tag	NA					NA	NA	
			Number Marked/Tagged	NA					NA	NA	
	Lower Cowlitz River Tributaries	Spawners	Prespawn Mortalities in Nature	Lower Cowlitz River	?	?	?	?		0	0
			Out-of-Program Strays		?	?	?	?		0	0
		Spawners in Nature	Lower Cowlitz River	?	?	?	?		0	0	
			Out-of-Basin Strays	?	?	?	?		0	0	
		Total Eggs Laid		?	?	?	?		0	0	
		Smolts Produced		?					0	0	
		Offspring	Smolts Trapped & Released	Number Trapped	NA					NA	NA
				Number Released	NA					NA	NA
			Type of Mark/Tag	NA					NA	NA	
			Number Marked/Tagged	NA					NA	NA	
Above Dams	Cispus River	Spawners	Prespawn Mortalities in Nature	Cispus River	?		?		0	0	
			Out-of-Program Strays		?		?		0	0	
		Spawners in Nature	Cispus River	?		?		0	0		
			Out-of-Basin Strays	?		?		0	0		

Above Dams

Cispus River	Offspring	Total Eggs Laid	?	?		0	0	
		Smolts Produced		?		NA	0	
		Smolts Trapped & Released	Number Trapped		?		NA	0
			Number Released	?	?		NA	0
			Type of Mark/Tag	?	?		NA	NA
			Number Marked/Tagged	?	?		NA	0
Upper Cowlitz River	Spawners	Prespawn Mortalities in Nature	Upper Cowlitz River	?	?		0	0
			Out-of-Program Strays	?	?		0	0
		Spawners in Nature	Upper Cowlitz River	?	?		0	0
			Out-of-Program Strays	?	?		0	0
	Offspring	Total Eggs Laid	?	?		0	0	
		Smolts Produced		55,150	CFFF (TPU/WDFW)	NA	0	
		Smolts Trapped & Released	Number Trapped		2,188	CFFF (TPU/WDFW)	NA	0
			Number Released		?		NA	0
Type of Mark/Tag			NA		NA	NA		
		Number Marked/Tagged		?		NA	0	
Tilton River	Spawners	Prespawn Mortalities in Nature	Tilton River	?	?		<129	<300
			Out-of-Program Strays	?	?		0	0
		Spawners in Nature	Tilton River	?	?		1,286	>3,000
			Out-of-Program Strays	?	?		0	0
	Offspring	Total Eggs Laid	?	?		?	?	
		Smolts Produced		?		NA	>88,000	
		Smolts Trapped & Released	Number Trapped		45,396	TPU Mayfield	NA	>66,000
			Number Released		?		NA	>66,000
Type of Mark/Tag			NA		NA	CWT		
		Number Marked/Tagged		0		NA	>66,000	

Above Dams	Total	Spawners	Prespawn	Tilton River	?	?		<129	<300	
			Mortalities in Nature	Out-of-Program Strays	?	?		0	0	
		Spawners in Nature	Tilton River	?	?		1,286	>3,000		
			Out-of-Program Strays	?	?		0	0		
		Total Eggs Laid		?	?		?	?		
	Offspring	Smolts Produced			>55,150		Mayfield / CFFF	NA	>88,000	
		Smolts Trapped & Released	Number Trapped			47,584		Mayfield / CFFF	NA	>66,000
			Number Released			?			NA	>66,000
			Type of Mark/Tag			NA			NA	CWT
			Number Marked/Tagged			0		TPU, RMIS	NA	>66,000
Smolt Migration										
Smolts	Number of Smolts in Lower Cowlitz River	Lower Cowlitz River		?	?		3,500,000	60,000		
		Cispus River		?	?		0	0		
		Upper Cowlitz River		?	?		0	0		
		Tilton River		?	?		0	66,000		
		Total		?	?		3,500,000	126,000		
	Number of Smolts at Mouth of Cowlitz River	Lower Cowlitz River		?	?		?	?		
		Cispus River		?	?		?	?		
		Upper Cowlitz River		?	?		?	?		
		Tilton River		?	?		?	?		
		Total		?	?		?	?		
	Number of Smolts in Columbia River Estuary	Lower Cowlitz River		?	?		?	?		
		Cispus River		?	?		?	?		
		Upper Cowlitz River		?	?		?	?		
		Tilton River		?	?		?	?		
		Total		?	?		?	?		
Management Metrics (Rates to be Calculated Using the Data Collected Above)										
Adult Salmon	Harvest Rate	Ocean	Commercial		?	?	?	?	?	?
			Tribal		?	?	?	?	?	?
			Sport		?	?	?	?	?	?
			Total Ocean		35.1%		34.7%		ISIT	?
	Columbia River	Commercial		?	?	?	?	?	?	
		Tribal		?	?	?	?	?	?	
		Sport		?	?	?	?	?	?	
		Total Columbia River		15.3%		14.5%		ISIT	?	?

Adult Salmon	Harvest Rate	Cowlitz River	Commercial	?	?	?	?		?	?		
			Tribal	?	?	?	?		?	?		
			Sport	14.2%		1.5%		ISIT		?	?	
			Total Cowlitz River	14.2%		1.5%		ISIT		?	?	
		Above Mayfield Dam - Sport	Upper Cowlitz Subbasin	0.8%		0.0%		ISIT		?	?	
			Tilton Subbasin	1.3%		1.1%		ISIT		?	?	
			Total Above Mayfield Dam	2.1%		1.1%		ISIT		?	?	
			Total Harvest									
		Total Harvest	Commercial	?	?	?	?			?	?	
			Tribal	?	?	?	?			?	?	
			Sport	?	?	?	?			?	?	
			Total	66.7%		51.8%		ISIT		?	?	
		Stray Rate	Cowlitz River Salmon	Out-of-Basin	?		?			<5%	<5%	
	Cowlitz Basin			?		?			<5%	<5%		
	Total			?		?			<5%	<5%		
	Out-of-Basin Strays Into Cowlitz River		?		?				<5%	<5%		
	Trapped at Barrier Dam	Lower Cowlitz River	Trapping Rate (% of Returns to Cowlitz River)	?	?	NA			NA	NA		
				?	?	NA			NA	NA		
			Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	?	?	NA			NA	NA	
				Released Below Dams	?	?	NA			NA	NA	
				Released Above Dams	?	?	NA			NA	NA	
				Mortalities	?	?	NA			NA	NA	
		Surplus	?	?	NA			NA	NA			
		Tilton River	Trapping Rate (% of Returns to Cowlitz River)	?	?	?	?			NA	NA	
				?	?	?	?			NA	NA	
			Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	?	?	?	?			NA	NA
				Released Below Dams	?	?	?	?			NA	NA
				Released Above Dams	?	?	?	?			NA	NA
				Mortalities	?	?	?	?			NA	NA
	Surplus	?	?	?	?			NA	NA			

Adult Salmon

Trapped at Barrier Dam

Upper Cowlitz Subbasin	Percentage of Cowlitz Salmon Hatchery Collection	Trapping Rate (% of Returns to Cowlitz River)	?		?		?	?		
		Hatchery Broodstock	?		?		?	?		
		Released Below Dams	?		?		?	?		
		Released Above Dams	?		?		?	?		
		Mortalities	?		?		?	?		
		Surplus	?		?		?	?		
		Trapping Rate (% of Returns to Cowlitz River)		25.3%	45.3%	21.7%	21.9%	ISIT, TPU, WDFW. Reports	?	?
	Total	Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	27.1%	52.4%	4.2%	4.2%	ISIT, TPU, WDFW. Reports	?	?
			Released Below Dams	0.0%	3.6%	0.0%	0.6%	ISIT, TPU, WDFW. Reports	?	?
			To Tilton Subbasin	18.9%	28.8%	0.1%	1.9%	ISIT, TPU, WDFW. Reports	?	?
			To Upper Cowlitz Subbasin	17.7%	49.7%	92.8%	95.7%	ISIT, TPU, WDFW. Reports	?	?
			Mortalities	0.0%	4.8%	0.0%	0.7%	ISIT, TPU, WDFW. Reports	?	?
			Surplus	1.0%	1.2%	0.0%	0.0%	ISIT, TPU, WDFW. Reports	?	?
			Trapping Rate (% of Returns to Cowlitz River)		25.3%	45.3%	21.7%	21.9%	ISIT, TPU, WDFW. Reports	?
Age (Run Year - Brood Year)	Integrated Hatchery Program	Mean Age	?		NA		4.5	NA		
		Age Composition (proportion)	Age-2	?		NA		0%	NA	
			Age-3	?		NA		5%	NA	
			Age-4	?		NA		50%	NA	
			Age-5	?		NA		35%	NA	
			Age-6	?		NA		8%	NA	
			Age-7	?		NA		2%	NA	
	Mean Age		?		NA		NA	NA		
	Segregated Hatchery Program	Age Composition (proportion)	Age-2	?		NA		NA	NA	
			Age-3	?		NA		NA	NA	
			Age-4	?		NA		NA	NA	
			Age-5	?		NA		NA	NA	
			Age-6	?		NA		NA	NA	
			Age-7	?		NA		NA	NA	
Mean Age			?		NA		NA	NA		

Adult Salmon

Age (Run Year - Brood Year)

Total Hatchery	Mean Age	3.16	NA	RMIS	4.5	NA	
	Age Composition (proportion)	Age-2	0.000	NA	RMIS	0%	NA
		Age-3	0.146	NA	RMIS	5%	NA
		Age-4	0.572	NA	RMIS	50%	NA
		Age-5	0.253	NA	RMIS	35%	NA
		Age-6	0.029	NA	RMIS	8%	NA
		Age-7	0.000	NA	RMIS	2%	NA
Lower Cowlitz Subbasin Natural-origin	Mean Age	NA	?		NA	NA	
	Age Composition (proportion)	Age-2	NA	?		NA	NA
		Age-3	NA	?		NA	NA
		Age-4	NA	?		NA	NA
		Age-5	NA	?		NA	NA
		Age-6	NA	?		NA	NA
		Age-7	NA	?		NA	NA
Upper Cowlitz Subbasin Natural-origin	Mean Age	NA	?		NA	4.5	
	Age Composition (proportion)	Age-2	NA	?		NA	0%
		Age-3	NA	?		NA	5%
		Age-4	NA	?		NA	50%
		Age-5	NA	?		NA	35%
		Age-6	NA	?		NA	8%
		Age-7	NA	?		NA	2%
Tilton Subbasin Natural-origin	Mean Age	NA	?		NA	NA	
	Age Composition (proportion)	Age-2	NA	?		NA	NA
		Age-3	NA	?		NA	NA
		Age-4	NA	?		NA	NA
		Age-5	NA	?		NA	NA
		Age-6	NA	?		NA	NA
		Age-7	NA	?		NA	NA
Total Natural-origin	Mean Age	NA	?		NA	4.5	
	Age Composition (proportion)	Age-2	NA	?		NA	0%
		Age-3	NA	?		NA	5%
		Age-4	NA	?		NA	50%
		Age-5	NA	?		NA	35%
		Age-6	NA	?		NA	8%
		Age-7	NA	?		NA	2%

Spawning	In Hatchery	Integrated Hatchery Program	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		4,500	4,500
			Mean Eyed Fecundity	?	?		4,275	4,275
			Fertility	?	?		95%	95%
		Segregated Hatchery Program	Prespawn Mortality Rate	?	?	ISIT	NA	NA
			Mean Fecundity	?	?		NA	NA
			Mean Eyed Fecundity	?	?		NA	NA
			Fertility	?	?		NA	NA
		Total Hatchery	Prespawn Mortality Rate	8.7-14.7%		ISIT, WDFW	<5%	<5%
			Mean Fecundity	844-4,728		ISIT, WDFW	4,500	4,500
	Mean Eyed Fecundity		?	?		4,275	4,275	
	Fertility		?	?		95%	95%	
	In Nature	Lower Cowlitz River	Prespawn Mortality Rate	?	?		NA	NA
			Mean Fecundity	?	?		NA	NA
		Cispus River	Prespawn Mortality Rate	?	?		NA	NA
			Mean Fecundity	?	?		NA	NA
		Upper Cowlitz River / Subbasin	Prespawn Mortality Rate	?	?		NA	NA
			Mean Fecundity	?	?		NA	NA
		Tilton River	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		4,500	4,500
Survival of Offspring to Smolt Stage	In Hatchery	Integrated Hatchery Program	Fertility Rate	?	?		95%	NA
			Eyed Egg-to-Fry Survival	?	NA		95%	NA
			Fry-to-Parr Survival	?	NA		95%	NA
			Parr-to-Smolt Survival	?	NA		95%	NA
			Green Egg-to-Smolt Survival	?	NA		81%	NA
		Segregated Hatchery Program	Fertility Rate	?	?		95%	NA
			Eyed Egg-to-Fry Survival	?	NA		95%	NA
			Fry-to-Parr Survival	?	NA		95%	NA
			Parr-to-Smolt Survival	?	NA		95%	NA
			Green Egg-to-Smolt Survival	?	NA		81%	NA
		Total Hatchery	Fertility Rate	?	?		95%	NA
			Eyed Egg-to-Fry Survival	?	NA		95%	NA
			Fry-to-Parr Survival	?	NA		95%	NA
			Parr-to-Smolt Survival	?	NA		95%	NA
			Green Egg-to-Smolt Survival	68.6% - 70.9%		ISIT, WDFW	81%	NA

Survival of Offspring to Smolt Stage	In Nature	Lower Cowlitz River	Green Egg-to-Smolt Survival	NA	?		NA	?	
		Cispus River	Green Egg-to-Smolt Survival	NA	?		NA	?	
		Upper Cowlitz River / Subbasin	Green Egg-to-Smolt Survival	NA	?		NA	?	
		Tilton River	Green Egg-to-Smolt Survival	NA	?		NA	?	
	Marking / Tagging Rate	Hatchery-origin	Integrated Hatchery Program		?	NA		?	NA
			Segregated Hatchery Program		?	NA		?	NA
			Total Hatchery		21.5%	NA	RMIS/WDFW	?	NA
		Natural-origin	Lower Cowlitz River		NA	?		?	NA
			Cispus River		NA	?		?	NA
			Upper Cowlitz River / Subbasin		NA	?		?	NA
			Tilton River		NA	?		?	NA
	Survival to Maturity	Integrated Hatchery Program	Smolt Survival	to Mouth of Cowlitz River		?	NA		?
to Columbia River Estuary				?	NA		?	NA	
Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)			Fry		?	NA		?	NA
			Parr		?	NA		?	NA
			Smolts		?	NA		0.11%	NA
Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)			Fry		?	NA		?	NA
			Parr		?	NA		?	NA
			Smolts		?	NA		0.67%	NA
Productivity (Recruits / Spawner)			Smolts / Female Spawner		?	NA		449	NA
			Smolts / Adult+Jack Spawner		?	NA		899	NA
		Female-to-Female		?	NA		>>1	NA	
		Adult-to-Adult		?	NA		>>1	NA	
		Adult+Jack-to-Adult+Jack		?	NA		>>1	NA	
	Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?	NA		>>1	NA		

Survival to Maturity

Segregated Hatchery Program	Smolt Survival	to Mouth of Cowlitz River	?		NA		NA	NA
		to Columbia River Estuary	?		NA		NA	NA
	Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)	Fry	?		NA		NA	NA
		Parr	?		NA		NA	NA
		Smolts	?		NA		NA	NA
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	?		NA		NA	NA
		Parr	?		NA		NA	NA
		Smolts	?		NA		NA	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	?		NA		NA	NA
		Smolts / Adult+Jack Spawner	?		NA		NA	NA
		Female-to-Female	?		NA		NA	NA
		Adult-to-Adult	?		NA		NA	NA
Adult+Jack-to-Adult+Jack		?		NA		NA	NA	
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?		NA		NA	NA	
Total Hatchery	Smolt Survival	to Mouth of Cowlitz River	?		NA		?	NA
		to Columbia River Estuary	?		NA		?	NA
	Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)	Fry	?		NA		?	NA
		Parr	?		NA		?	NA
		Smolts	0.043%		NA	RMIS	0.11%	NA
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	?		NA		?	NA
		Parr	?		NA		?	NA
		Smolts	0.074%		NA	RMIS	0.67%	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	3,370	3,462	NA	ISIT, WDFW	449	NA
		Smolts / Adult+Jack Spawner	1,761	1,793	NA	ISIT, WDFW	899	NA
		Female-to-Female	?		NA		>>1	NA
		Adult-to-Adult	?		NA		>>1	NA
Adult+Jack-to-Adult+Jack		?		NA		>>1	NA	
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?		NA		>>1	NA	

Survival to Maturity

Lower Cowlitz River Natural-origin	Freshwater Survival/Conversion/ Collection Efficiency		NA	NA	NA	NA	
	Smolt Passage (Transport) Survival		NA	NA	NA	NA	
	Smolt Survival	to Mouth of Cowlitz River	NA	?	NA	?	
		to Columbia River Estuary	NA	?	NA	?	
	Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)	Fry	NA	?	NA	?	
		Parr	NA	?	NA	?	
		Smolts	NA	?	NA	?	
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?	NA	?	
		Parr	NA	?	NA	?	
		Smolts	NA	?	NA	?	
	Productivity (Recruits / Spawner)	Smolts / Female Spawner		?	NA	NA	?
		Smolts / Adult+Jack Spawner		?	NA	NA	?
		Female-to-Female		?	NA	NA	>1
		Adult-to-Adult		?	NA	NA	>1
Adult+Jack-to-Adult+Jack		?	NA	NA	>1		
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?	NA	NA	>1		
Cispus River Natural-origin	Freshwater Survival/Conversion/ Collection Efficiency		NA	?	NA	NA	
	Smolt Passage (Transport) Survival		NA	?	NA	NA	
	Smolt Survival	to Mouth of Cowlitz River	NA	?	NA	NA	
		to Columbia River Estuary	NA	?	NA	NA	
	Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)	Fry	NA	?	NA	NA	
		Parr	NA	?	NA	NA	
		Smolts	NA	?	NA	NA	
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?	NA	NA	
		Parr	NA	?	NA	NA	
		Smolts	NA	?	NA	NA	
	Productivity (Recruits / Spawner)	Smolts / Female Spawner		?	NA	NA	NA
		Smolts / Adult+Jack Spawner		?	NA	NA	NA
		Female-to-Female		?	NA	NA	NA
		Adult-to-Adult		?	NA	NA	NA
Adult+Jack-to-Adult+Jack		?	NA	NA	NA		
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?	NA	NA	NA		

Survival to Maturity

Upper Cowlitz River/ Subbasin Natural-origin	Freshwater Survival/Conversion/ Collection Efficiency	NA	5.8%	CFFF (TPU/WDFW)	NA	NA	
	Smolt Passage (Transport) Survival	NA	?		NA	NA	
	Smolt Survival	to Mouth of Cowlitz River	NA	?		NA	NA
		to Columbia River Estuary	NA	?		NA	NA
	Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)	Fry	NA	?		NA	NA
		Parr	NA	?		NA	NA
		Smolts	NA	?		NA	NA
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?		NA	NA
		Parr	NA	?		NA	NA
		Smolts	NA	?		NA	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	?	NA		NA	NA
		Smolts / Adult+Jack Spawner	?	NA		NA	NA
		Female-to-Female	?	NA		NA	NA
		Adult-to-Adult	?	NA		NA	NA
Adult+Jack-to-Adult+Jack		?	NA		NA	NA	
Adult+Jack+Mini-Jack-to- Adult+Jack+Mini-Jack		?	NA		NA	NA	
Tilton River Natural-origin	Freshwater Survival/Conversion/ Collection Efficiency	NA	?		NA	>75%	
	Smolt Passage (Transport) Survival	NA	?		NA	>99%	
	Smolt Survival	to Mouth of Cowlitz River	NA	?		NA	?
		to Columbia River Estuary	NA	?		NA	?
	Smolt-to-Adult Return Rate (SAR; to Cowlitz Salmon Hatchery)	Fry	NA	?		NA	?
		Parr	NA	?		NA	?
		Smolts	NA	?		NA	?
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?		NA	?
		Parr	NA	?		NA	?
		Smolts	NA	?		NA	?
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	NA	?		NA	?
		Smolts / Adult+Jack Spawner	NA	?		NA	?
		Female-to-Female	NA	?		NA	>1
		Adult-to-Adult	NA	?		NA	>1
Adult+Jack-to-Adult+Jack		NA	?		NA	>1	
Adult+Jack+Mini-Jack-to- Adult+Jack+Mini-Jack		NA	?		NA	>1	

Proportional Natural Influence	Lower Cowlitz River	Collected/ Released	pHOS	0.260	ISIT	<0.3
			pNOB	NA		NA
			PNI	NA		NA
		Actual Spawners	pHOS	0.260	ISIT	<0.3
			pNOB	0.072	ISIT	>0.5
			PNI	0.190	ISIT	>0.63
	Cispus River	Collected/ Released	pHOS	?		NA
			pNOB	?		NA
			PNI	?		NA
		Actual Spawners	pHOS	?		NA
			pNOB	?		NA
			PNI	?		NA
	Upper Cowlitz River/Subbasin	Collected/ Released	pHOS	0.972 - 1	TPU, WDFW	NA
			pNOB	NA		NA
			PNI	NA		NA
		Actual Spawners	pHOS	?		NA
			pNOB	?		NA
			PNI	?		NA
	Tilton River	Collected/ Released	pHOS	0.196 - 0.210	TPU, WDFW	<0.3
			pNOB	NA		>0.5
			PNI	NA		>0.63
Actual Spawners		pHOS	?		<0.3	
		pNOB	?		>0.5	
		PNI	?		>0.63	
Total	Collected/ Released	pHOS	0.152 - 0.530	ISIT, TPU, WDFW	<0.3	
		pNOB	0 - 0.185	ISIT, TPU, WDFW	>0.5	
		PNI	0.550	ISIT, TPU, WDFW	>0.63	
	Actual Spawners	pHOS	0.260	ISIT	<0.3	
		pNOB	0.072	ISIT	>0.5	
		PNI	0.190	ISIT	>0.63	