

**Big Table for Spring 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	Cispus River	Upper Cowlitz River	Tilton River	Last 5 Years Adult Mean				FHMP Adult Goal		
NA	1,800	1,800	1,000*	Hatchery		Natural		Source(s) of Current Data	Hatchery	Natural
Metrics				Min	Max	Min	Max			
<b>Data to be Collected (Numbers)</b>										
<b>Mature Returns</b>										
<b>Totals</b>	Total Survivors to Maturity			?		?			13,763	1,603
	Total Escapement to Cowlitz River			?		?			8,691	1,522
<b>Harvest</b>	<b>Fishery Location</b>	Ocean	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Ocean	4,328		73		ISIT	4,328	73
		Columbia River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Columbia River	744		8		ISIT	744	8
		Lower Cowlitz River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	5,728		8		ISIT		
			Total Lower Cowlitz River	5,728		8		ISIT	5,728	8
		Above Mayfield Dam	Cispus River	?		?				
			Upper Cowlitz River	701		2		ISIT		
			Tilton River	0		0		ISIT		
Total Above Mayfield Dam	701		2		ISIT	701	2			
<b>Fishery Type</b>	Commercial	?		?						
	Tribal	?		?						
	Sport	?		?						
<b>Total Harvest</b>				11,501		91		ISIT	11,501	91

<b>Stray-ing</b>	<b>Stray Origin</b>	Cowlitz River	Outside Cowlitz Basin	?	?		0	0			
		Population	In Cowlitz Basin	?	?		0	0			
		Other Population Strays in Cowlitz River		?	?		0	0			
<b>Trapping</b>	<b>Lower Cowlitz Subbasin Tributary Traps</b>	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	?	?						
		<b>Cowlitz Salmon Hatchery</b>	Hatchery Broodstock Collected		1,624	1,825	0	0	ISIT, TPU, WDFW	1,100	275
			Released Below Dams		0	131	0	3	TPU, WDFW	0	0
			Released Above Dams	Upper Cowlitz Subbasin	4,750	8,918	208	239	ISIT, TPU, WDFW	1,320	1,155
Tilton Subbasin	0			148	0	3	TPU, WDFW	0	0		
Mortalities			3	193	0	1	TPU, WDFW	<10%	<10%		
Surplus (Food Bank, Outplant, Nutrient Enhancement)			658	709	0	0	TPU, WDFW	0	0		
Total			9,784	12,629	238	239	TPU, WDFW	2,689	1,589		

<b>Nature (pre-spawning)</b>	<b>Location</b>	Below Dams	Lower Cowlitz River	Cowlitz River	562		98		ISIT	0	<b>0</b>	
				Out-of-Program Strays	?	?	?	?		0	0	
		Above Dams	Upper Cowlitz/Cispus Rivers		5,899		209		ISIT	1,100	1,100	
			Tilton River		?		?			0	0	
		Total			6,461		307		ISIT	1,100	1,100	
<b>Hatchery Production</b>												
<b>Spawners</b>	<b>Integrated Hatchery Program</b>	Prespawn Mortalities		?	?	?	?		<25	<25		
		Killed, Not Spawned		?	?	?	?		0	0		
		Spawned		?	?	?	?		250	250		
	<b>Segregated Hatchery Program</b>	Prespawn Mortalities		180		NA		ISIT	<75	NA		
		Killed, Not Spawned		?	?	NA			0	NA		
		Spawned		1,645		NA		ISIT	750	NA		
	<b>Total Hatchery</b>	Prespawn Mortalities		180		0		ISIT	<25	<25		
		Killed, Not Spawned		?	?	?	?		0	0		
		Spawned		1,645	1,646	0	0	ISIT/WDFW	1,000	250		
<b>Offspring - Rearing and Release</b>	<b>Integrated Hatchery Program</b>	Green Eggs Collected (Fecundity)		Mean	?		?			2,292	2,292	
				Total	0		0		ISIT	573,024		
		Eyed Eggs (Eyed Fecundity)		Mean	?		?			2,084	2,084	
				Total	?		?			520,931		
				Released	?		?			0	0	
		Fry	Fry Produced		Number	?					496,125	
					Size	?					?	
			Fry Released		Number	?					0	
					Size	?					NA	
		Parr	Parr Produced		Number	?					472,500	
					Size	?					?	
			Parr Released		Number	?					0	
					Size	?					NA	
		Smolts	Smolts Produced		Number	0					450,000	
					Size	?					?	
			Smolts Released		Number	0					450,000	
					Size	?					?	
		Total Offspring Released				?					450,000	
Marks and Tags	Type: CWT	Number	?					90,000				

Offspring - Rearing and Release

<b>Segregated Hatchery Program</b>	Green Eggs Collected (Fecundity)	Mean	3,863	NA	WDFW	4,584	NA
		Total	3,148,899	NA	WDFW	1,719,073	
	Eyed Eggs (Eyed Fecundity)	Mean	?	NA		4,167	NA
		Total	?	NA		1,562,794	
	Fry	Fry Produced	Released	?	NA	0	NA
			Number	?	NA	1,488,375	
		Fry Released	Size	?	NA	?	
			Number	?	NA	0	
	Parr	Parr Produced	Size	0	NA	?	
			Number	?	NA	1,417,500	
		Parr Released	Size	?	NA	?	
			Number	?	NA	0	
	Smolts	Smolts Produced	Size	51,888	NA	WDFW	?
			Number	?	NA	1,350,000	
		Smolts Released	Size	?	NA	?	
			Number	?	NA	1,350,000	
	Total Offspring Released		Size	1,730,357	NA	WDFW	?
Total Offspring Released			1,782,246	NA	WDFW	1,350,000	
Marks and Tags	Type: CWT	Number	259,485	NA	RMIS	0	
<b>Total Hatchery Programs</b>	Green Eggs Collected (Fecundity)	Mean	3,863	NA	WDFW	3,667	3,667
		Total	3,148,899	NA	WDFW	2,292,098	
	Eyed Eggs (Eyed Fecundity)	Mean	?	?	NA	3,334	3,334
		Total	?	?	NA	2,083,725	
	Fry	Fry Produced	Released	?	NA	0	0
			Number	?		1,984,500	
		Fry Released	Size	?		?	
			Number	0		WDFW	0
	Parr	Parr Produced	Size	?		?	
			Number	?		1,890,000	
		Parr Released	Size	?		?	
			Number	90,968-645,076		WDFW, RMIS	0
	Smolts	Age-2 Smolts Produced	Size	?		?	
			Number	?		1,800,000	
		Age-2 Smolts Released	Size	?		?	
			Number	1,303,849-1,881,888		WDFW, RMIS	1,800,000
	Total Offspring Released		Size	?		?	
Total Offspring Released			1,688,156-1,972,857		WDFW, RMIS	1,800,000	
Marks and Tags	Type: CWT	Number	259,485		RMIS	360,000	

Natural Production										
Below Dams	Lower Cowlitz River Mainstem	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	
		Offspring		Smolts Produced			?		NA	0
				Smolts Trapped & Released	Number Trapped		?		NA	NA
					Number Released		?		NA	NA
					Type of Mark/Tag				NA	NA
					Number Marked/Tagged			?		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		
Offspring			Smolts Produced			?		0	0	
			Smolts Trapped & Released	Number Trapped		?		NA	NA	
				Number Released		?		NA	NA	
				Type of Mark/Tag				NA	NA	
				Number Marked/Tagged			?		NA	NA
Above Dams	Cispus River	Spawners	Prespawn Mortalities in Nature	Cispus River	?	?		<50	<50	
				Out-of-Program Strays		?	?		0	0
			Spawners in Nature	Cispus River	?	?		500	500	
			Out-of-Basin Strays		?	?		0	0	

Above Dams

Cispus River	Offspring	Total Eggs Laid	?	?		?	?		
		Smolts Produced				NA	42,857		
		Smolts Trapped & Released	Number Trapped		?		NA	30,000	
			Number Released		?		NA	30,000	
			Type of Mark/Tag		?		NA	NA	
			Number Marked/Tagged		?		NA	0	
Upper Cowlitz River	Spawners	Prespawn Mortalities in Nature	Upper Cowlitz River	?	?		<50	<50	
			Out-of-Program Strays	?	?		0	0	
		Spawners in Nature	Upper Cowlitz River	?	?		500	500	
			Out-of-Program Strays	?	?		0	0	
	Offspring	Total Eggs Laid		?	?		?	?	
		Smolts Produced			123,558	CFFF (TPU/WDFW)	NA	42,857	
		Smolts Trapped & Released	Number Trapped			20,572	CFFF (TPU/WDFW)	NA	30,000
			Number Released			?		NA	30,000
Type of Mark/Tag						NA	NA		
		Number Marked/Tagged		?		NA	0		
Tilton River	Spawners	Prespawn Mortalities in Nature	Tilton River	?	?		0	0	
			Out-of-Program Strays	?	?		0	0	
		Spawners in Nature	Tilton River	?	?		0	0	
			Out-of-Program Strays	?	?		0	0	
	Offspring	Total Eggs Laid		?	?		0	0	
		Smolts Produced			?		NA	0	
		Smolts Trapped & Released	Number Trapped			0		NA	0
			Number Released			?		NA	0
Type of Mark/Tag						NA	NA		
		Number Marked/Tagged		0		NA	0		

<b>Above Dams</b>	<b>Total</b>	Spawners	Prespawn	Tilton River	?	?		<257	<600	
			Mortalities in Nature	Out-of-Program Strays	?	?		0	0	
		Spawners in Nature	Tilton River	?	?		1,000	1,000		
			Out-of-Program Strays	?	?		0	0		
		Total Eggs Laid		?	?		?	?		
	Offspring	Smolts Produced				?		NA	85,714	
		Smolts Trapped & Released	Number Trapped		28,223			TPU Mayfield	NA	60,000
			Number Released		?				NA	60,000
			Type of Mark/Tag						NA	CWT
			Number Marked/Tagged		0			TPU, RMIS	NA	0
<b>Smolt Migration</b>										
<b>Smolts</b>	Number of Smolts in Lower Cowlitz River	Lower Cowlitz River		?	?			1,800,000	0	
		Cispus River		?	?			0	30,000	
		Upper Cowlitz River		?	?			0	30,000	
		Tilton River		?	?			0	0	
		Total		?	?			1,800,000	60,000	
	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		?	?			?	?	
<b>Management Metrics (Rates to be Calculated Using the Data Collected Above)</b>										
<b>Adult Salmon</b>	<b>Harvest Rate</b>	Ocean	Commercial		?	?	?	?	?	?
			Tribal		?	?	?	?	?	?
			Sport		?	?	?	?	?	?
			Total Ocean		20.7%		14.9%		ISIT	?
	Columbia River	Commercial		?	?	?	?	?	?	
		Tribal		?	?	?	?	?	?	
		Sport		?	?	?	?	?	?	
		Total Columbia River		2.8%		1.6%		ISIT	?	?

Adult Salmon

Harvest Rate	Cowlitz River	Lower Cowlitz River	Commercial	?	?	?	?		?	?	
			Tribal	?	?	?	?		?	?	
			Sport	26.9%		1.8%		ISIT	?	?	
		Total Cowlitz River		26.9%		1.8%		ISIT	?	?	
		Above Mayfield Dam - Sport	Upper Cowlitz Subbasin	2.7%		0.5%		ISIT	?	?	
			Tilton Subbasin	0.0%		0.0%		ISIT	?	?	
	Total Above Mayfield Dam		2.7%		18.9%		ISIT	?	?		
	Total Harvest	Commercial		?	?	?	?		?	?	
		Tribal		?	?	?	?		?	?	
		Sport		?	?	?	?		?	?	
		Total		53.1%		18.9%		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	
		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
	Tilton River	Trapping Rate (% of Returns to Cowlitz River)		?	?	?	?		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)	43.2%	61.0%	ISIT, TPU, WDFW	?	?	
		Hatchery Broodstock	24.1%	0.0%	ISIT, TPU, WDFW	?	?	
		Released Below Dams	0.0%	0.0%	ISIT, TPU, WDFW	?	?	
		Released Above Dams	70.1%	100.0%	ISIT, TPU, WDFW	?	?	
		Mortalities	0.0%	0.0%	ISIT, TPU, WDFW	?	?	
		Surplus	5.8%	0.0%	ISIT, TPU, WDFW	?	?	
		Trapping Rate (% of Returns to Cowlitz River)		43.2%	61.0%	ISIT, TPU, WDFW	?	?
	Total	Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	24.1%	0.0%	ISIT, TPU, WDFW	?	?
			Released Below Dams	0.0%	0.0%	ISIT, TPU, WDFW	?	?
			To Tilton Subbasin	0.0%	0.0%	ISIT, TPU, WDFW	?	?
			To Upper Cowlitz Subbasin	70.1%	100.0%	ISIT, TPU, WDFW	?	?
			Mortalities	0.0%	0.0%	ISIT, TPU, WDFW	?	?
			Surplus	5.8%	0.0%	ISIT, TPU, WDFW	?	?
			Trapping Rate (% of Returns to Cowlitz River)		43.2%	61.0%	ISIT, TPU, WDFW	?
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
	Segregated Hatchery Program	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

Adult Salmon

Age (Run Year - Brood Year)

Total Hatchery	Mean Age	3.27	NA	RMIS	4.5	NA	
	Age Composition (proportion)	Age-2	0.000	NA	RMIS	0%	NA
		Age-3	0.201	NA	RMIS	5%	NA
		Age-4	0.381	NA	RMIS	50%	NA
		Age-5	0.363	NA	RMIS	35%	NA
		Age-6	0.055	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%

<b>Spawning</b>	<b>In Hatchery</b>	Integrated Hatchery Program	Prespawn Mortality Rate	NA	NA		<5%	<5%
			Mean Fecundity	NA	NA		4,500	4,500
			Mean Eyed Fecundity	NA	NA		4,275	4,275
			Fertility	NA	NA		95%	95%
	<b>In Hatchery</b>	Segregated Hatchery Program	Prespawn Mortality Rate	9.8%	NA	ISIT	NA	NA
			Mean Fecundity	3,863	NA		NA	NA
			Mean Eyed Fecundity	?	NA		NA	NA
			Fertility	?	NA		NA	NA
	<b>Total Hatchery</b>		Prespawn Mortality Rate	9.8%		ISIT	<5%	<5%
			Mean Fecundity	3,863	NA	WDFW	4,500	4,500
			Mean Eyed Fecundity	?	NA		4,275	4,275
			Fertility	?	NA		95%	95%
	<b>In Nature</b>	Lower Cowlitz River	Prespawn Mortality Rate	?	?		NA	NA
			Mean Fecundity	?	?		NA	NA
		Cispus River	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		4,500	4,500
Upper Cowlitz River / Subbasin		Prespawn Mortality Rate	?	?		<5%	<5%	
		Mean Fecundity	?	?		4,500	4,500	
Tilton River		Prespawn Mortality Rate	?	?		NA	NA	
		Mean Fecundity	?	?		NA	NA	
<b>Survival of Offspring to Smolt Stage</b>	<b>In Hatchery</b>	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
	<b>In Hatchery</b>	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
	<b>Total Hatchery</b>		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			60.5% - 75.7%		ISIT, WDFW	81%	NA	

<b>Survival of Offspring to Smolt Stage</b>	<b>In Nature</b>	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	?		
	<b>Marking / Tagging Rate</b>	Hatchery-origin	Integrated Hatchery Program		?	NA		?	NA	
			Segregated Hatchery Program		14.7%	14.9%	NA	RMIS/WDFW	?	NA
			Total Hatchery		14.7%	14.9%	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	
		<b>Survival to Maturity</b>	<b>Integrated Hatchery Program</b>	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		0.07%	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		0.39%	NA		
Productivity (Recruits / Spawner)	Smolts / Female Spawner			?	NA		450	NA		
	Smolts / Adult+Jack Spawner			?	NA		900	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**

<b>Segregated Hatchery Program</b>	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	0.075%	NA	RMIS	?	NA
		Smolts	0.677%	NA	RMIS	0.07%	NA
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	?	NA		?	NA
		Parr	0.124%	NA	RMIS	?	NA
		Smolts	1.201%	NA	RMIS	0.39%	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	?	NA		450	NA
		Smolts / Adult+Jack Spawner	?	NA		900	NA
		Female-to-Female	?	NA		>>1	NA
		Adult-to-Adult	0.766	NA	ISIT, WDFW	>>1	NA
		Adult+Jack-to-Adult+Jack	?	NA		>>1	NA
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?	NA		>>1	NA	
<b>Total Hatchery</b>	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	0.08%	NA	RMIS	?	NA
		Smolts	0.677%	NA	RMIS	0.07%	NA
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	?	NA		?	NA
		Parr	0.124%	NA	RMIS	?	NA
		Smolts	1.201%	NA	RMIS	0.39%	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	2,334	NA	ISIT, WDFW	450	NA
		Smolts / Adult+Jack Spawner	1,163	NA	ISIT, WDFW	900	NA
		Female-to-Female	?	NA		>>1	NA
		Adult-to-Adult	0.766	NA	ISIT, WDFW	>>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**

<b>Lower Cowlitz River Natural-origin</b>	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	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	
<b>Cispus River Natural-origin</b>	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	

**Survival to Maturity**

<b>Upper Cowlitz River/ Subbasin Natural-origin</b>	Freshwater Survival/Conversion/ Collection Efficiency	NA	25.9%	CFFF (TPU/WDFW)	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	
<b>Tilton River Natural-origin</b>	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	

<b>Proportional Natural Influence</b>	<b>Lower Cowlitz River</b>	Collected/ Released	pHOS	0.874	ISIT	NA
			pNOB	NA		NA
			PNI	NA		NA
		Actual Spawners	pHOS	NA		NA
			pNOB	NA		NA
			PNI	NA		NA
	<b>Cispus River</b>	Collected/ Released	pHOS	?		<0.35
			pNOB	?		>0.6
			PNI	?		>0.63
		Actual Spawners	pHOS	?		<0.3
			pNOB	?		>0.6
			PNI	?		>0.67
	<b>Upper Cowlitz River/Subbasin</b>	Collected/ Released	pHOS	0.938	ISIT	<0.35
			pNOB	0.000	ISIT	>0.6
			PNI	0.000	ISIT	>0.63
		Actual Spawners	pHOS	?		<0.3
			pNOB	?		>0.6
			PNI	?		>0.67
	<b>Tilton River</b>	Collected/ Released	pHOS	NA		NA
			pNOB	NA		NA
			PNI	NA		NA
		Actual Spawners	pHOS	NA		NA
			pNOB	NA		NA
			PNI	NA		NA
<b>Total</b>	Collected/ Released	pHOS	0.935	ISIT, TPU, WDFW	<0.35	
		pNOB	0.000	ISIT, TPU, WDFW	>0.6	
		PNI	0.000	ISIT, TPU, WDFW	>0.63	
	Actual Spawners	pHOS	?		<0.3	
		pNOB	?		>0.6	
		PNI	?		>0.67	