

Big Table for Coho 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		
3,700	2,000	2,000	2,000*	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			?		?			73,029	20,798
	Total Escapement to Cowlitz River			?		?			12,751	14,868
Harvest	Fishery Location	Ocean	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Ocean	38,857		2,185		ISIT	38,800	2,089
		Columbia River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Columbia River	19,835		1,691		ISIT	19,804	1,617
		Lower Cowlitz River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	6,714		887		ISIT		
			Total Lower Cowlitz River	6,714		887		ISIT	6,714	887
		Above Mayfield Dam	Cispus River	?		?				
			Upper Cowlitz River	1,583		37		ISIT		
			Tilton River	1,150		80		ISIT		
Total Above Mayfield Dam	2,733		117		ISIT	2,733	117			
Fishery Type	Commercial	?		?						
	Tribal	?		?						
	Sport	?		?						
Total Harvest				68,139		4,880		ISIT	68,051	4,710
Year of Origin	Cowlitz River Population	Outside Cowlitz Basin		?		?			0	0
		In 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	?	?			0		
			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		1,582	2,305	619	1,696	ISIT, TPU	629	943	
	Released Below Dams		59	128	0	0	TPU, WDFW	0	0	
	Released Above Dams	Upper Cowlitz Subbasin	2,699	10,009	2,243	10,445	ISIT, TPU, WDFW	2,811	5,154	
		Tilton Subbasin	4,237	5,088	4,187	4,912	ISIT, TPU, WDFW	1,104	2,577	
	Mortalities		2	152	0	62	TPU, WDFW	<10%	<10%	
	Surplus (Food Bank, Outplant, Nutrient Enhancement, etc)		13,617	14,660	0	0	TPU, WDFW	5,000	0	
Total		21,380		4,806		TPU, WDFW	4,570	7,077		
(pre-spawning)	Location	Below Dams	Lower Cowlitz River	?		?			1,762	4,111
			Cowlitz River Out-of-Program Strays	?	?	?	?		0	0
		Above Dams	Upper Cowlitz/Cispus Rivers	8,771		2,315		ISIT	1,905	4,444
		Tilton River	3,318		3,605		ISIT	952	2,222	

Total			12,089		5,920		ISIT	4,619	10,778		
Hatchery Production											
Spawners	Integrated Hatchery Program	Prespawn Mortalities	23		53		ISIT	<92	<113		
		Killed, Not Spawned	?		?			0	0		
		Spawned	274		556		ISIT	1,753	2,142		
	Segregated Hatchery Program	Prespawn Mortalities	158		NA		ISIT	0	0		
		Killed, Not Spawned	?		NA			0	0		
		Spawned	1,241		NA		ISIT	750	0		
	Total Hatchery	Prespawn Mortalities	152	181	53	62	ISIT, WDFW	<92	<113		
		Killed, Not Spawned	?	?	?	?		0	0		
		Spawned	403	556	1,900	2,070	ISIT, WDFW	1,753	2,142		
Offspring - Rearing and Release	Integrated Hatchery Program	Green Eggs Collected (Fecundity)	Mean	3,561		3,513		ISIT	3,564	3,564	
			Total	516,230		942,844		ISIT	2,801,453		
		Eyed Eggs (Eyed Fecundity)	Mean	?	?	?	?		3,240	3,240	
			Total	?	?	?	?		2,546,775		
			Released	?	?	?	?		0	0	
		Fry	Fry Produced	Number	?	?	?	?	2,425,500		
				Size	?	?	NA	NA	?		
			Fry Released	Number	?	?	NA	NA	0		
				Size	?	?	NA	NA	NA		
		Parr	Parr Produced	Number	?	?	NA	NA	2,310,000		
				Size	?	?	NA	NA	?		
			Parr Released	Number	?	?	NA	NA	0		
				Size	?	?	NA	NA	NA		
		Smolts	Smolts Produced	Number	958,815			ISIT	2,200,000		
				Size	?	?	NA	NA	?		
			Smolts Released	Number	958,815			ISIT	2,200,000		
				Size	?				?		
		Total Offspring Released			958,815			ISIT	CWT		
		Marks and Tags	Type: CWT	Number	?				440,000		

Offspring - Rearing and Release

Segregated Hatchery Program	Green Eggs Collected (Fecundity)		Mean	3,513		NA		ISIT	0	NA
			Total	2,176,135		NA		ISIT	0	
	Eyed Eggs (Eyed Fecundity)		Mean	?	?	NA			0	NA
			Total	?	?	NA			0	
	Released		Number	?	?	NA			0	NA
			Size	?	?	NA			?	
	Fry	Fry Produced	Number	?	?	NA			0	
			Size	?	?	NA			?	
	Fry Released		Number	?	?	NA			0	
			Size	?	?	NA			?	
	Parr Produced		Number	?	?	NA			0	
			Size	?	?	NA			?	
	Parr Released		Number	?	?	NA			0	
			Size	?	?	NA			?	
	Smolts Produced		Number	1,234,982		NA		ISIT	0	
			Size	?	?	NA			?	
Smolts Released		Number	1,234,982		NA		ISIT	0		
		Size	?	?	NA			?		
Total Offspring Released			1,234,982		NA		ISIT	NA		
Marks and Tags	Type: CWT	Number	?		NA			0		
Total Hatchery Programs	Green Eggs Collected (Fecundity)		Mean	1,377	2,956	1,377	2,956	ISIT, WDFW	3,564	3,564
			Total	2,393,300	2,692,365	753,352	942,844	ISIT, WDFW	2,801,453	
	Eyed Eggs (Eyed Fecundity)		Mean	?	?	?			3,240	3,240
			Total	?	?	?			2,546,775	
	Released		Number	?	?	?			0	0
			Size	?	?	?			2,425,500	
	Fry	Fry Produced	Number	?	?	NA			?	
			Size	?	?	NA			?	
	Fry Released		Number	35,128	300,568	NA		WDFW	0	
			Size	?	?	NA			?	
	Parr Produced		Number	?	?	NA			2,310,000	
			Size	?	?	NA			?	
	Parr Released		Number	62,717	131,184	NA		WDFW	0	
			Size	?	?	NA			?	
	Age-2 Smolts Produced		Number	?	?	NA			2,200,000	
			Size	?	?	NA			?	
Age-2 Smolts Released		Number	2,193,797	2,503,284	NA		ISIT, WDFW, RMIS	2,200,000		
		Size	?	?	NA			?		
Total Offspring Released			2,291,642	2,935,036	NA			2,200,000		
Marks and Tags	Type: CWT	Number	?		NA			440,000		

Natural Production												
Below Dams	Lower Cowlitz River Mainstem	Spawners	Prespawn Mortalities in Nature	Lower Cowlitz River	?	?	?	?	<159	<370		
			Out-of-Program Strays		?	?	?	?	0	0		
			Spawners in Nature	Lower Cowlitz River	508		4,727		ISIT	1,586	3,700	
			Out-of-Basin Strays		?	?	?	?	0	0		
		Offspring	Total Eggs Laid		?	?	?	?		?	?	
			Smolts Produced		?					NA	158,665	
			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		
Offspring		Total Eggs Laid		?	?	?	?	0	0			
		Smolts Produced		?					0	0		
		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	?		?	<86	<200			
			Out-of-Program Strays		?		?	0	0			
		Spawners in Nature	Cispus River	?		?	857	2,000				
		Out-of-Basin Strays		?		?	0	0				

Above Dams	Cispus River	Offspring	Total Eggs Laid	?	?		?	?		
			Smolts Produced				NA	64,286		
			Smolts Trapped & Released	Number Trapped	?			NA	45,000	
				Number Released	?	?		NA	45,000	
				Type of Mark/Tag	?	?		NA	NA	
				Number Marked/Tagged	?	?		NA	0	
	Upper Cowlitz River	Spawners	Prespawn Mortalities in Nature	Upper Cowlitz River	?	?		<86	<200	
				Out-of-Program Strays	?	?		0	0	
			Spawners in Nature	Upper Cowlitz River	?	?		857	2,000	
				Out-of-Program Strays	?	?		0	0	
		Offspring	Total Eggs Laid	?	?		?	?		
			Smolts Produced			145,455	CFFF (TPU/WDFW)	NA	64,286	
			Smolts Trapped & Released	Number Trapped			118,138	CFFF (TPU/WDFW)	NA	45,000
				Number Released			?		NA	45,000
				Type of Mark/Tag			NA		NA	NA
				Number Marked/Tagged			96,493	RMIS	NA	0
	Tilton River	Spawners	Prespawn Mortalities in Nature	Tilton River	?	?		<86	<200	
				Out-of-Program Strays	?	?		0	0	
			Spawners in Nature	Tilton River	?	?		857	2,000	
				Out-of-Program Strays	?	?		0	0	
		Offspring	Total Eggs Laid	?	?		?	?		
			Smolts Produced			?		NA	64,286	
			Smolts Trapped & Released	Number Trapped			28,631	TPU Mayfield	NA	45,000
				Number Released			?		NA	45,000
	Type of Mark/Tag				NA		NA	CWT		
Number Marked/Tagged			25,774	TPU, RMIS	NA	45,000				

Above Dams	Total	Spawners	Prespawn	Tilton River	?	?		<257	<600	
			Mortalities in Nature	Out-of-Program Strays	?	?		0	0	
		Spawners in Nature	Tilton River	?	?		2,571	6,000		
			Out-of-Program Strays	?	?		0	0		
		Total Eggs Laid		?	?		?	?		
	Offspring	Smolts Produced			?			NA	192,857	
		Smolts Trapped & Released	Number Trapped		28,223		TPU Mayfield	NA	135,000	
			Number Released		?			NA	135,000	
		Type of Mark/Tag			NA			NA	CWT	
		Number Marked/Tagged			122,267		TPU, RMIS	NA	>45,000	
Smolt Migration										
Smolts	Location	Number of Smolts in Lower Cowlitz River	Lower Cowlitz River	2,193,797	2,279,449	?	ISIT, WDFW, RMIS	2,200,000	158,665	
			Cispus River	?	?	?		0	45,000	
			Upper Cowlitz River	?	?	?		0	0	
			Tilton River	?	?	?		0	45,000	
			Total	?	?	?		2,200,000	293,665	
	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	44.9%	47.6%	12.0%	14.0%	ISIT, TPU	?	?
			Commercial	?	?	?	?		?	?
	Columbia River	Tribal	?	?	?	?		?	?	
		Sport	?	?	?	?		?	?	
		Total Columbia River	19.2%	20.5%	6.8%	8.0%	ISIT, TPU	?	?	

Adult Salmon

Harvest Rate	Cowlitz River	Lower Cowlitz River	Commercial	?	?	?	?		?	?
			Tribal	?	?	?	?		?	?
			Sport	6.3%	24.6%	1.6%	5.5%	ISIT, TPU	?	?
			Total Cowlitz River	6.3%	24.6%	1.6%	5.5%	ISIT, TPU	?	?
		Above Mayfield Dam - Sport	Upper Cowlitz Subbasin	1.8%	13.3%	0.2%	1.9%	ISIT, TPU	?	?
			Tilton Subbasin	1.7%	24.5%	0.7%	1.9%	ISIT, TPU	?	?
			Total Above Mayfield Dam	3.4%		1.0%		ISIT	?	?
	Total Harvest	Commercial	?	?	?	?		?	?	
		Tribal	?	?	?	?		?	?	
		Sport	?	?	?	?		?	?	
		Total	?		?			?	?	
	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	
		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	
		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	Trapping Rate (% of Returns to Cowlitz River)		?		?		?	?	
	Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	?		?		?	?	
		Released Below Dams	?		?		?	?	
		Released Above Dams	?		?		?	?	
		Mortalities	?		?		?	?	
		Surplus	?		?		?	?	
Total	Trapping Rate (% of Returns to Cowlitz River)		21.1%	25.4%	36.3%	61.7%	ISIT, TPU, WDFW	?	?
	Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	16.0%	19.1%	10.9%	15.1%	ISIT, TPU, WDFW	?	?
		Released Below Dams	0.4%	0.5%	0.0%	0.0%	ISIT, TPU, WDFW	?	?
		To Tilton Subbasin	35.0%	53.3%	21.8%	41.7%	ISIT, TPU, WDFW	?	?
		To Upper Cowlitz Subbasin	29.6%	39.5%	63.4%	84.9%	ISIT, TPU, WDFW	?	?
		Mortalities	0.0%	1.3%	0.0%	1.4%	ISIT, TPU, WDFW	?	?
		Surplus	30.2%	43.9%	0.0%	0.1%	ISIT, TPU, WDFW	?	?
Age (Run Year - Brood Year)	Mean Age		?		NA		3.9	NA	
	Integrated Hatchery Program	Age Composition (proportion)	Age-2	?		NA		0%	NA
			Age-3	?		NA		10%	NA
			Age-4	?		NA		90%	NA
			Age-5	?		NA		0%	NA
			Age-6	?		NA		0%	NA
			Age-7	?		NA		0%	NA
			Mean Age		?		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	2.92	NA	RMIS	3.9	NA	
	Age Composition (proportion)	Age-2	0.000	NA	RMIS	0%	NA
		Age-3	0.085	NA	RMIS	10%	NA
		Age-4	0.915	NA	RMIS	90%	NA
		Age-5	0.001	NA	RMIS	0%	NA
		Age-6	0.000	NA	RMIS	0%	NA
		Age-7	0.000	NA	RMIS	0%	NA
Lower Cowlitz Subbasin Natural-origin	Mean Age	NA	?		NA	3.9	
	Age Composition (proportion)	Age-2	NA	?		NA	0%
		Age-3	NA	?		NA	10%
		Age-4	NA	?		NA	90%
		Age-5	NA	?		NA	0%
		Age-6	NA	?		NA	0%
		Age-7	NA	?		NA	0%
Upper Cowlitz Subbasin Natural-origin	Mean Age	NA	?		NA	3.9	
	Age Composition (proportion)	Age-2	NA	?		NA	0%
		Age-3	NA	?		NA	10%
		Age-4	NA	?		NA	90%
		Age-5	NA	?		NA	0%
		Age-6	NA	?		NA	0%
		Age-7	NA	?		NA	0%
Tilton Subbasin Natural-origin	Mean Age	NA	?		NA	3.9	
	Age Composition (proportion)	Age-2	NA	?		NA	0%
		Age-3	NA	?		NA	10%
		Age-4	NA	?		NA	90%
		Age-5	NA	?		NA	0%
		Age-6	NA	?		NA	0%
		Age-7	NA	?		NA	0%
Total Natural-origin	Mean Age	NA	?		NA	3.9	
	Age Composition (proportion)	Age-2	NA	?		NA	0%
		Age-3	NA	?		NA	10%
		Age-4	NA	?		NA	90%
		Age-5	NA	?		NA	0%
		Age-6	NA	?		NA	0%
		Age-7	NA	?		NA	0%

Spawning	In Hatchery	Integrated Hatchery Program	Prespawn Mortality Rate	8.9%		ISIT	<5%	<5%
			Mean Fecundity	?	?		3,000	3,000
			Mean Eyed Fecundity	?	?		2,850	2,850
			Fertility	?	?		95%	95%
		Segregated Hatchery Program	Prespawn Mortality Rate	12.7%	NA	ISIT	NA	NA
			Mean Fecundity	?	NA		NA	NA
			Mean Eyed Fecundity	?	NA		NA	NA
			Fertility	?	NA		NA	NA
		Total Hatchery	Prespawn Mortality Rate	10.8%		ISIT	<5%	<5%
			Mean Fecundity	3,562	6,147	WDFW	3,000	3,000
	Mean Eyed Fecundity		?	?		2,850	2,850	
	Fertility		?	?		95%	95%	
	In Nature	Lower Cowlitz River	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		3,000	3,000
		Cispus River	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		3,000	3,000
		Upper Cowlitz River / Subbasin	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		3,000	3,000
		Tilton River	Prespawn Mortality Rate	?	?		<5%	<5%
			Mean Fecundity	?	?		3,000	3,000
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	72.7%		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		51.0%	NA	RMIS	?	NA
		Natural-origin	Lower Cowlitz River		NA	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		0.07%	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		2.09%	NA	
Productivity (Recruits / Spawner)			Smolts / Female Spawner		?	NA		700	NA
			Smolts / Adult+Jack Spawner		?	NA		1,399	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	?		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	0.435%		NA	RMIS	2.09%	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	1,002	1,868	NA	ISIT, WDFW	700	NA
		Smolts / Adult+Jack Spawner	1,104	1,323	NA	ISIT, WDFW	1,399	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	75.6%	CFFF (TPU/WDFW)	NA	>75%	
	Smolt Passage (Transport) Survival	NA	?		NA	>99%	
	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	>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

Upper Cowlitz River/ Subbasin Natural-origin	Freshwater Survival/Conversion/ Collection Efficiency	NA	75.6%	CFFF (TPU/WDFW)	NA	>75%	
	Smolt Passage (Transport) Survival	NA	?		NA	>99%	
	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	>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	
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	NA		NA
			pNOB	NA		NA
			PNI	NA		NA
		Actual Spawners	pHOS	0.104	ISIT	<0.3
			pNOB	0.195	ISIT	NA
			PNI	0.584	ISIT	NA
	Cispus River	Collected/ Released	pHOS	?		<0.35
			pNOB	?		NA
			PNI	?		NA
		Actual Spawners	pHOS	?		<0.3
			pNOB	?		NA
			PNI	?		NA
	Upper Cowlitz River/Subbasin	Collected/ Released	pHOS	0.774	ISIT	<0.35
			pNOB	0.695	ISIT	>0.6
			PNI	0.443	ISIT	>0.63
		Actual Spawners	pHOS	?		<0.3
			pNOB	?		>0.6
			PNI	?		>0.67
	Tilton River	Collected/ Released	pHOS	0.570	ISIT	<0.35
			pNOB	?		NA
			PNI	?		NA
Actual Spawners		pHOS	?		<0.3	
		pNOB	?		NA	
		PNI	?		NA	
Total	Collected/ Released	pHOS	0.309 - 0.698	ISIT, TPU, WDFW	<0.35	
		pNOB	0.265 - 0.287	ISIT, TPU, WDFW	>0.6	
		PNI	0.266 - 0.441	ISIT, TPU, WDFW	>0.63	
	Actual Spawners	pHOS	0.526	ISIT	<0.3	
		pNOB	0.195	ISIT	>0.6	
		PNI	0.260	ISIT	>0.67	