

Big Table for Winter Steelhead. 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		
400	500	500	200	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			?		?			11,296	1,926
	Total Escapement to Cowlitz River			?		?			11,296	1,926
Harvest	Fishery Location	Ocean	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Ocean	0		0		ISIT	0	0
		Columbia River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	?		?				
			Total Columbia River	0		0		ISIT	0	0
		Lower Cowlitz River	Commercial Fishery	?		?				
			Tribal Fishery	?		?				
			Sport Fishery	10,249		20		ISIT		
			Total Lower Cowlitz River	10,249		20		ISIT	10,249	20
		Above Mayfield Dam	Cispus River	?		?				
			Upper Cowlitz River	105		4		ISIT		
			Tilton River	30		6		ISIT		
Total Above Mayfield Dam	135		9		ISIT	135	9			
Fishery Type	Commercial	?		?						
	Tribal	?		?						
	Sport	?		?						
Total Harvest				10,385		29		ISIT	10,385	73

Stray -ing	Stray Origin	Cowlitz River		Outside Cowlitz Basin				0	0			
		Population		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		?							
			Kept for Broodstock		?					20		
			Mortalities		?				0	0		
			Killed		?					0		
			Total Caught		?					20		
		Lacamas Creek	Released Below Weir		?					0		
			Released Above Weir		?							
			Kept for Broodstock		?					20		
			Mortalities		?				0	0		
			Killed		?					0		
			Total Caught		?					20		
		Olequa Creek	Released Below Weir		?					0		
			Released Above Weir		?							
			Kept for Broodstock		?					20		
			Mortalities		?				0	0		
			Killed		?					0		
			Total Caught		?					20		
		Ostrander Creek	Released Below Weir		?					0		
			Released Above Weir		?							
			Kept for Broodstock		?					20		
			Mortalities		?				0	0		
			Killed		?					0		
			Total Caught		?					20		
		Cowlitz Salmon Hatchery	Hatchery Broodstock Collected		295	514	110	118	ISIT, TPU, WDFW	296	162	
			Released Below Dams		0	265	0	468	TPU, WDFW	0	0	
			Released Above Dams	Upper Cowlitz Subbasin		101	193	156	166	ISIT, TPU, WDFW	283	578
				Tilton Subbasin		14	72	205	303	TPU, WDFW	29	231
			Mortalities		1	137	0	12	TPU, WDFW	<10%	<10%	
			Surplus (Food Bank, Outplant, Nutrient Enhancement, etc)		3,032	3,450	0	4	TPU, WDFW	0	0	
Total			3,811	4,015	568	1,059	TPU, WDFW	676	1,079			

Nature (pre-spawning)	Location	Below Dams	Lower Cowlitz River	Cowlitz River	180		645		ISIT	273	638
				Out-of-Program Strays	?	?	?	?		0	0
		Above Dams	Upper Cowlitz/Cispus Rivers		97		142		ISIT	236	550
			Tilton River		?		?			24	220
	Total			304		1,048		ISIT	534	1,408	
Hatchery Production											
Spawners	Integrated Hatchery Program	Prespawn Mortalities		35	36	13	13	ISIT, WDFW	<27	<22	
		Killed, Not Spawned		?	?	?	?		0	0	
		Spawned		268	268	104	104	ISIT, WDFW	269	221	
	Segregated Hatchery Program	Prespawn Mortalities		158		NA			<75	NA	
		Killed, Not Spawned		?		NA			0	NA	
		Spawned		1,241		NA			0	NA	
	Total Hatchery	Prespawn Mortalities		35	36	13	13	ISIT, WDFW	<27	<22	
		Killed, Not Spawned		?	?	?	?		0	0	
		Spawned		263	268	104	107	ISIT, WDFW	269	221	
Offspring - Rearing and Release	Integrated Hatchery Program	Green Eggs Collected (Fecundity)		Mean	5,559 - 8,364				ISIT, WDFW	5,500	5,500
				Total	700,192		148,664		WDFW	955,041	
		Eyed Eggs (Eyed Fecundity)		Mean	?	?	?	?		5,225	5,225
				Total	?	?	?	?		868,219	
		Fry		Released	?	?	?	?		0	0
				Fry Produced	Number	?	?	?	?		826,875
		Fry Released		Size	?	?	?	?		?	
				Number	?	?	?	?		0	
		Parr		Size	?	?	?	?		NA	
				Parr Produced	Number	?	?	?	?		787,500
		Parr Released		Size	?	?	?	?		?	
				Number	?	?	?	?		0	
		Smolts		Size	?	?	?	?		NA	
				Smolts Produced	Number	?					750,000
		Smolts Released		Size	?	?	?	?		?	
				Number	407,481				WDFW	750,000	
		Total Offspring Released		Size	?					?	
Number	407,481				WDFW	CWT					
Marks and Tags		Type: CWT	Number		?				150,000		

Offspring - Rearing and Release

Segregated Hatchery Program	Green Eggs Collected (Fecundity)	Mean	NA	NA		0	NA	
		Total	NA	NA		0		
	Eyed Eggs (Eyed Fecundity)	Mean	NA	NA		0	NA	
		Total	NA	NA		0		
	Fry	Fry Produced	Released	NA	NA		0	NA
			Number	NA	NA		0	
		Fry Released	Size	NA	NA		?	
			Number	NA	NA		0	
		Parr Produced	Size	NA	NA		?	
			Number	NA	NA		0	
	Parr Released	Size	NA	NA		?		
		Number	NA	NA		0		
	Smolts	Smolts Produced	Size	NA	NA		?	
			Number	NA	NA		0	
		Smolts Released	Size	NA	NA		?	
			Number	NA	NA		0	
	Total Offspring Released			NA	NA		NA	
Marks and Tags	Type: CWT	Number	NA	NA		0		
Total Hatchery Programs	Green Eggs Collected (Fecundity)	Mean	5,559 - 8,364		ISIT, WDFW	5,500	5,500	
		Total	700,192	148,664	WDFW	955,041		
	Eyed Eggs (Eyed Fecundity)	Mean	?	?		3,240		
		Total	?	?		2,546,775		
	Fry	Fry Produced	Released	?	?	0		
			Number	?	?	826,875		
		Fry Released	Size	?	?		?	
			Number	?	?		0	
		Parr Produced	Size	?	?		NA	
			Number	?	?		787,500	
	Parr Released	Size	?	?		?		
		Number	?	?		0		
	Smolts	Age-2 Smolts Produced	Size	?	?		NA	
			Number	?			750,000	
		Age-2 Smolts Released	Size	?	?		?	
			Number	407,481		WDFW	750,000	
	Total Offspring Released			407,481	WDFW	CWT		
Marks and Tags	Type: CWT	Number	?		150,000			

Natural Production												
Below Dams	Lower Cowlitz River Mainstem	Spawners	Prespawn Mortalities in Nature	Lower Cowlitz River	?	?		?	?	?		
			Out-of-Program Strays		?	?		0	0	?	?	
			Spawners in Nature	Lower Cowlitz River	162		580		ISIT		?	?
			Out-of-Basin Strays		?	?		0	0	?	?	
		Offspring	Total Eggs Laid		?	?	?	?		?	?	
			Smolts Produced		?					?	?	
			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	?	?	?	?		<18	<63	
			Out-of-Program Strays		?	?	?	?		0	0	
			Spawners in Nature	Lower Cowlitz River	?	?	?	?		162	580	
			Out-of-Basin Strays		?	?	?	?		0	0	
Offspring		Total Eggs Laid		?	?	?	?		892,980	3,191,760		
		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	?		?		<10	<25		
			Out-of-Program Strays		?		?		0	0		
		Spawners in Nature	Cispus River	?		?		107	250			
			Out-of-Basin Strays		?		?		0	0		

Above Dams	Cispus River	Total Eggs Laid	?	?		589,286	1,375,000		
			Smolts Produced	?			8,333		
		Offspring	Smolts Trapped & Released	Number Trapped	?			6,250	
				Number Released	?	?		6,250	
			Type of Mark/Tag	?	?		NA		
			Number Marked/Tagged	?	?		0		
	Upper Cowlitz Subbasin	Spawners	Prespawn Mortalities in Nature	Upper Cowlitz River	?	?		<10	<25
				Out-of-Program Strays	?	?		0	0
		Spawners in Nature	Upper Cowlitz River	?	?		107	250	
			Out-of-Program Strays	?	?		0	0	
		Offspring	Total Eggs Laid	?	?		589,286	1,375,000	
			Smolts Produced	13,270			CFFF (TPU/WDFW)	8,333	
			Smolts Trapped & Released	Number Trapped	9,439			CFFF (TPU/WDFW)	6,250
				Number Released	?				6,250
	Type of Mark/Tag			NA				NA	
	Number Marked/Tagged			?				0	
	Tilton River	Spawners	Prespawn Mortalities in Nature	Tilton River	?	?		<8	<20
				Out-of-Program Strays	?	?		0	0
			Spawners in Nature	Tilton River	?	?		86	200
				Out-of-Program Strays	?	?		0	0
		Offspring	Total Eggs Laid	?	?		471,429	1,100,000	
			Smolts Produced	?				6,667	
			Smolts Trapped & Released	Number Trapped	7,649			TPU Mayfield	5,000
				Number Released	?				5,000
Type of Mark/Tag	NA					CWT			
Number Marked/Tagged	?				5,000				

Above Dams	Total	Prespawn	Tilton River	?	?		<257	<600	
		Spawners	Mortalities in Nature	Out-of-Program Strays	?	?		0	0
			Spawners in Nature	Tilton River	?	?		300	700
				Out-of-Program Strays	?	?		0	0
			Total Eggs Laid		?	?		1,650,000	3,850,000
	Offspring		Smolts Produced		?			23,333	
		Smolts Trapped & Released		Number Trapped		17,089	TPU Mayfield	17,500	
				Number Released		?		17,500	
				Type of Mark/Tag		NA		CWT	
				Number Marked/Tagged		?		5,000	
Smolt Migration									
Smolts	Location	Number of Smolts in Lower Cowlitz River	Lower Cowlitz River	?	?		750,000	20,000	
			Cispus River	?	?		0	6,250	
			Upper Cowlitz River	?	?		0	0	
			Tilton River	?	?		0	5,000	
			Total	?	?		750,000	37,500	
	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	?	?	?	?	0%	0%
			Total Ocean	0%	0%	ISIT, TPU	?	?	
	Columbia River	Commercial	?	?	?	?	?	?	
		Tribal	?	?	?	?	?	?	
		Sport	?	?	?	?	0%	0%	
		Total Columbia River	0%	0%	ISIT, TPU	?	?		

Adult Salmon

Harvest Rate	Cowlitz River	Lower Cowlitz River	Commercial	?	?	?	?		?	?
			Tribal	?	?	?	?		?	?
			Sport						?	?
		Total Cowlitz River	71.0%		1.6%		ISIT, TPU	71%	2%	
		Above Mayfield Dam - Sport	Upper Cowlitz Subbasin	0.7%	0.3%	ISIT, TPU		1%	0%	
			Tilton Subbasin	0.2%	0.4%	ISIT, TPU		0%	0%	
	Total Above Mayfield Dam		0.9%	2.3%	ISIT, TPU		1%	2%		
	Total Harvest	Commercial	?	?	?	?		?	?	
		Tribal	?	?	?	?		?	?	
		Sport	?	?	?	?		?	?	
		Total	71.8%		2.3%		ISIT, TPU	72%	2%	
	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)		26.6%	NA	ISIT, TPU, WDFW	?	NA		
		Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	14.5%	NA	ISIT, TPU, WDFW	?	NA		
			Released Below Dams	0.0%	NA	ISIT, TPU, WDFW	?	NA		
			Released Above Dams	1.5%	NA	ISIT, TPU, WDFW	?	NA		
			Mortalities	0.0%	NA	ISIT, TPU, WDFW	?	NA		
			Surplus	79.4%	NA	ISIT, TPU, WDFW	?	NA		
	Tilton River	Trapping Rate (% of Returns to Cowlitz River)		26.6%	47.7%	ISIT, TPU, WDFW	?	?		
		Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	14.5%	19.5%	ISIT, TPU, WDFW	?	?		
			Released Below Dams	0.0%	0.0%	ISIT, TPU, WDFW	?	?		
			Released Above Dams	1.5%	53.9%	ISIT, TPU, WDFW	?	?		
			Mortalities	0.0%	26.1%	ISIT, TPU, WDFW	?	?		
			Surplus	79.4%	0.0%	ISIT, TPU, WDFW	?	?		

Adult Salmon

Trapped at Barrier Dam

Upper Cowlitz Subbasin	Percentage of Cowlitz Salmon Hatchery Collection	Trapping Rate (% of Returns to Cowlitz River)	26.6%	47.7%	ISIT, TPU, WDFW	?	?	
		Hatchery Broodstock	14.5%	19.5%	ISIT, TPU, WDFW	?	?	
		Released Below Dams	0.0%	0.0%	ISIT, TPU, WDFW	?	?	
		Released Above Dams	1.5%	53.9%	ISIT, TPU, WDFW	?	?	
		Mortalities	0.0%	26.1%	ISIT, TPU, WDFW	?	?	
		Surplus	79.4%	0.0%	ISIT, TPU, WDFW	?	?	
		Trapping Rate (% of Returns to Cowlitz River)		26.6%	47.7%	ISIT, TPU, WDFW	?	?
	Total	Percentage of Cowlitz Salmon Hatchery Collection	Hatchery Broodstock	14.5%	19.5%	ISIT, TPU, WDFW	?	?
			Released Below Dams	0.0%	0.0%	ISIT, TPU, WDFW	?	?
			To Tilton Subbasin	1.5%	53.9%	ISIT, TPU, WDFW	?	?
			To Upper Cowlitz Subbasin	0.0%	26.1%	ISIT, TPU, WDFW	?	?
			Mortalities	79.4%	0.0%	ISIT, TPU, WDFW	?	?
			Surplus	14.5%	0.5%	ISIT, TPU, WDFW	?	?
			Trapping Rate (% of Returns to Cowlitz River)		26.6%	47.7%	ISIT, TPU, WDFW	?
Age (Run Year - Brood Year)	Integrated Hatchery Program	Mean Age	?	NA		?	NA	
		Age Composition (proportion)	Age-2	?	NA		?	NA
			Age-3	?	NA		?	NA
			Age-4	?	NA		?	NA
			Age-5	?	NA		?	NA
			Age-6	?	NA		?	NA
			Age-7	?	NA		?	NA
	Segregated Hatchery Program	Mean Age	?	NA		?	NA	
		Age Composition (proportion)	Age-2	?	NA		?	NA
			Age-3	?	NA		?	NA
			Age-4	?	NA		?	NA
			Age-5	?	NA		?	NA
			Age-6	?	NA		?	NA
			Age-7	?	NA		?	NA

Adult Salmon

Age (Run Year - Brood Year)

Total Hatchery	Mean Age		?	NA		?	NA	
	Age Composition (proportion)	Age-2		?	NA		?	NA
		Age-3		?	NA		?	NA
		Age-4		?	NA		?	NA
		Age-5		?	NA		?	NA
		Age-6		?	NA		?	NA
		Age-7		?	NA		?	NA
Lower Cowlitz Subbasin Natural-origin	Mean Age		NA	?		NA	?	
	Age Composition (proportion)	Age-2		NA		?	?	
		Age-3		NA		?	?	
		Age-4		NA		?	?	
		Age-5		NA		?	?	
		Age-6		NA		?	?	
		Age-7		NA		?	?	
Upper Cowlitz Subbasin Natural-origin	Mean Age		NA	?		NA	?	
	Age Composition (proportion)	Age-2		NA		?	?	
		Age-3		NA		?	?	
		Age-4		NA		?	?	
		Age-5		NA		?	?	
		Age-6		NA		?	?	
		Age-7		NA		?	?	
Tilton Subbasin Natural-origin	Mean Age		NA	?		NA	?	
	Age Composition (proportion)	Age-2		NA		?	?	
		Age-3		NA		?	?	
		Age-4		NA		?	?	
		Age-5		NA		?	?	
		Age-6		NA		?	?	
		Age-7		NA		?	?	
Total Natural-origin	Mean Age		NA	?		NA	?	
	Age Composition (proportion)	Age-2		NA		?	?	
		Age-3		NA		?	?	
		Age-4		NA		?	?	
		Age-5		NA		?	?	
		Age-6		NA		?	?	
		Age-7		NA		?	?	

Spawning	In Hatchery	Integrated Hatchery Program	Prespawn Mortality Rate	11.3%		ISIT	<10%	<10%
			Mean Fecundity	5,559 - 8,364		ISIT, WDFW	5,500	5,500
			Mean Eyed Fecundity	?	?		5,225	5,225
			Fertility	?	?		95%	95%
		Segregated Hatchery Program	Prespawn Mortality Rate	NA	NA		NA	NA
			Mean Fecundity	NA	NA		NA	NA
			Mean Eyed Fecundity	NA	NA		NA	NA
			Fertility	NA	NA		NA	NA
		Total Hatchery	Prespawn Mortality Rate	9.8%		ISIT	<10%	<10%
			Mean Fecundity	5,559 - 8,364		ISIT, WDFW	5,500	5,500
	Mean Eyed Fecundity		?	?		5,225	5,225	
	Fertility		?	?		95%	95%	
	In Nature	Lower Cowlitz River	Prespawn Mortality Rate	?	?		<10%	<10%
			Mean Fecundity	?	?		5,500	5,500
		Cispus River	Prespawn Mortality Rate	?	?		<10%	<10%
			Mean Fecundity	?	?		5,500	5,500
		Upper Cowlitz River / Subbasin	Prespawn Mortality Rate	?	?		<10%	<10%
			Mean Fecundity	?	?		5,500	5,500
		Tilton River	Prespawn Mortality Rate	?	?		<10%	<10%
			Mean Fecundity	?	?		5,500	5,500
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	60.5% - 75.7%		WDFW	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	
	Total Hatchery	Green Egg-to-Smolt Survival	?	NA		81%	NA	
		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%		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		?	NA		?	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	0.69%	NA	ISIT	0.69%	NA	
Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)			Fry	?	NA		?	NA	
			Parr	?	NA		?	NA	
			Smolts	2.56%	NA	ISIT	2.56%	NA	
Productivity (Recruits / Spawner)			Smolts / Female Spawner		4,426	NA	ISIT	4,426	NA
			Smolts / Adult+Jack Spawner		2,096	NA	ISIT	2,096	NA
		Female-to-Female		?	NA		>>1	NA	
		Adult-to-Adult		15.2	NA	ISIT	15.2	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	0.69%	NA	ISIT	0.69%	NA
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	?	NA		?	NA
		Parr	?	NA		?	NA
		Smolts	2.56%	NA	ISIT	2.56%	NA
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	4,426	NA	ISIT	4,426	NA
		Smolts / Adult+Jack Spawner	2,096	NA	ISIT	2,096	NA
		Female-to-Female	?	NA		>>1	NA
		Adult-to-Adult	15.2	NA	ISIT	15.2	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	>4%
	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	>6%
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	NA	?		NA	>200
		Smolts / Adult+Jack Spawner	NA	?		NA	>100
		Female-to-Female	NA	?		NA	>1
Adult-to-Adult		NA	1.88	ISIT	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	68.9%	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	5.72%	ISIT	NA	>3.5%
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?		NA	?
		Parr	NA	?		NA	?
		Smolts	NA	6.09%	ISIT	NA	>4%
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	?	?		NA	>200
		Smolts / Adult+Jack Spawner	?	124	ISIT	NA	>100
		Female-to-Female	?	?		NA	>1
Adult-to-Adult		?	0.60	ISIT	NA	>1	
Adult+Jack-to-Adult+Jack		?	?		NA	>1	
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?	?		NA	>1	

Survival to Maturity

Upper Cowlitz River/ Subbasin Natural-origin	Freshwater Survival/Conversion/ Collection Efficiency	NA	68.9%	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	5.72%	ISIT	NA	>3.5%
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?		NA	?
		Parr	NA	?		NA	?
		Smolts	NA	6.09%	ISIT	NA	>4%
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	?	?		NA	>200
		Smolts / Adult+Jack Spawner	?	124	ISIT	NA	>100
		Female-to-Female	?	?		NA	>1
		Adult-to-Adult	?	0.60	ISIT	NA	>1
Adult+Jack-to-Adult+Jack		?	?		NA	>1	
Adult+Jack+Mini-Jack-to-Adult+Jack+Mini-Jack		?	?		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	3.65%	ISIT	NA	>5%
	Total Smolt-to-Adult Survival Rate (TSAR; all maturing/mature salmon that can be accounted for)	Fry	NA	?		NA	?
		Parr	NA	?		NA	?
		Smolts	NA	3.90%	ISIT	NA	>6%
	Productivity (Recruits / Spawner)	Smolts / Female Spawner	NA	?		NA	>200
		Smolts / Adult+Jack Spawner	NA	51	ISIT	NA	>100
		Female-to-Female	NA	?		NA	>1
		Adult-to-Adult	NA	2.51	ISIT	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	0.229	ISIT	<0.35	
			pNOB	NA		>0.6	
			PNI	NA		>0.63	
		Actual Spawners	pHOS	NA		<0.3	
			pNOB	NA		>0.3	
			PNI	NA		>0.5	
		Cispus River	Collected/ Released	pHOS	0.541	ISIT	<0.35
				pNOB	0.199	ISIT	>0.6
				PNI	0.399	ISIT	>0.63
	Actual Spawners		pHOS	?		<0.3	
			pNOB	0.289	ISIT	>0.6	
			PNI	?		>0.67	
	Upper Cowlitz River/Subbasin		Collected/ Released	pHOS	0.541	ISIT	<0.35
				pNOB	0.199	ISIT	>0.6
				PNI	0.399	ISIT	>0.63
		Actual Spawners	pHOS	?		<0.3	
			pNOB	0.289	ISIT	>0.6	
			PNI	?		>0.67	
		Tilton River	Collected/ Released	pHOS	0.112	ISIT	<0.35
				pNOB	0.908	ISIT	>0.6
				PNI	0.890	ISIT	>0.63
	Actual Spawners		pHOS	?		<0.3	
			pNOB	0.908	ISIT	>0.6	
			PNI	?		>0.67	
Total	Collected/ Released		pHOS	0.280	ISIT	<0.35	
			pNOB	0.199	ISIT	>0.6	
			PNI	0.447	ISIT	>0.63	
	Actual Spawners	pHOS	?		<0.3		
		pNOB	0.289	ISIT	>0.6		
		PNI	?		>0.67		