

APPENDIX 4.A

Hatchery Origin and Wild Origin Smolt Production

Hatchery and Wild Fish Production

	Cases I, II, III			Case IV		
	Hatchery Releases	Estimated Wild Smolt Production	Total Smolt Production	Hatchery Releases	Estimated Wild Smolt Production	Total Smolt Production
Coho						
Snake River	0.0%	1,859,250	37,184,995	29,365,369	1,545,546	30,910,915
Upper Columbia	2.4%	44,388	887,761	700,000	36,842	736,842
Middle Columbia	7.0%	129,613	2,592,264	2,044,000	107,579	2,151,579
Lower Columbia	87.0%	1,618,032	32,360,645	25,561,369	1,345,335	26,906,704
Willamette	3.6%	67,216	1,344,324	1,060,000	55,789	1,115,789
Spring/summer chinook		11,739,697	39,132,323	25,749,069	11,035,315	36,784,384
Snake River	8.6%	1,004,053	3,346,844	2,202,224	943,810	3,146,034
Upper Columbia	21.9%	2,567,553	8,558,510	5,631,500	2,413,500	8,045,000
Middle Columbia	22.9%	2,684,683	8,948,943	5,888,404	2,523,602	8,412,006
Lower Columbia	19.2%	2,251,492	7,504,973	4,938,272	2,116,402	7,054,674
Willamette	27.5%	3,231,916	10,773,053	7,088,669	3,038,001	10,126,670
Fall chinook		113,802,184	227,604,368	100,109,021	100,109,021	200,218,042
Snake River	0.5%	612,797	1,225,594	533,134	533,134	1,066,268
Upper Columbia	10.8%	12,329,885	24,659,770	10,727,000	10,727,000	21,454,000
Middle Columbia	21.1%	24,002,299	48,004,598	20,882,000	20,882,000	41,764,000
Lower Columbia	67.5%	76,857,203	153,714,406	67,966,887	67,966,887	135,933,774
Willamette	0.0%	--	--	--	--	--
Steelhead		8,589,455	28,631,516	17,607,015	7,545,864	25,152,879
Snake River	64.4%	5,528,912	18,429,707	11,352,700	4,865,443	16,218,143
Upper Columbia	6.8%	584,415	1,948,051	1,200,000	514,286	1,714,286
Middle Columbia	2.7%	230,094	766,980	472,460	202,483	674,943
Lower Columbia	18.8%	1,617,908	5,393,027	3,322,105	1,423,759	4,745,864
Willamette	7.3%	628,125	2,093,750	1,259,750	539,893	1,799,643

Notes: 1. Estimates of hatchery releases are generally in line with the NMFS cap. Estimates of wild salmon are 0 percent for coho and 30 percent for chinook and steelhead.

2. According to the National Marine Fisheries Service's recent Biological Opinion on Artificial Propagation, for example, adult hatchery fish comprise approximately 50 percent of the fall chinook, 70 to 80 percent of the spring/summer chinook, 70 percent of the steelhead, and 95 percent of the coho salmon (Biological Opinion on Artificial Propagation in the Columbia River Basin, National Marine Fisheries Service, Northwest Region, March 29, 1999).

Alternatives

	Cases I, II, III				Case IV			
	<u>Coho</u>	Spring/ Summer <u>Chinook</u>	Fall <u>Chinook</u>	<u>Steelhead</u>	<u>Coho</u>	Spring/ Summer <u>Chinook</u>	Fall <u>Chinook</u>	<u>Steelhead</u>
Total number of smolts (wild and hatchery) released in the Columbia River system	37,184,995	39,132,323	227,604,368	28,631,516	30,910,915	36,784,384	200,218,042	25,152,879
Total run (average of the 1980's)	1,010,161	268,106	1,125,076	395,349				
Percent of total run (adult surviving escapement to Columbia River)	50.19%	77.56%	49.33%	98.90%				
Total returns to Columbia River during 1980's /1	507,000	207,943	555,000	391,000				
"Doubling of the run objective" - Columbia River returns	1,014,000	415,886	1,110,000	782,000				
Total run "doubling"	2,020,322	536,212	2,250,152	790,698				

- Notes: 1. Source: Status Report, "Columbia River Fish Runs and Fisheries, 1938-1997," Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife.
2. Overall survival of all smolts of these species in the Columbia River Basin needed to achieve doubling of the runs objective.

APPENDIX 4.B

Historical and Forecast Harvest Distributional Assumptions

Historical Harvest Distributional Assumptions (based on reviews of available data from 1971-1993)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Coho					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	NA	--	--	0.001%	--
b) Sport	NA	--	--	--	--
British Columbia					
a) Commercial	NA	2.000%	2.000%	4.500%	2.000%
b) Sport	NA	0.200%	0.200%	0.500%	0.200%
Subtotal Alaska/B.C. harvest	NA	2.200%	2.200%	5.001%	2.200%
Washington ocean					
a) Commercial	NA	1.000%	1.000%	2.005%	1.000%
b) Sport	NA	20.000%	20.000%	15.000%	20.000%
Washington Puget Sound					
a) Commercial	NA	--	--	0.050%	--
b) Sport	NA	--	--	0.050%	--
Oregon					
a) Commercial	NA	10.000%	10.000%	12.000%	10.000%
b) Sport	NA	13.000%	13.000%	12.000%	13.000%
California					
a) Commercial	NA	3.000%	3.000%	1.000%	3.000%
b) Sport	NA	2.000%	2.000%	0.500%	2.000%
Available for allocation inriver	NA	NA	NA	NA	NA
Columbia Basin inland					
a) Freshwater sport	NA	1.000%	1.000%	5.000%	1.000%
b) Gillnet	NA	10.000%	10.000%	27.389%	10.000%
c) Tribal	NA	--	--	--	--
Other	NA	0.800%	0.800%	--	0.800%
Total Harvest	NA	63.000%	63.000%	79.995%	63.000%
Hatchery requirement	NA	10.000%	10.000%	4.800%	10.000%
Hatchery surplus market	NA	13.500%	13.500%	7.603%	13.500%
Hatchery surplus carcass	NA	13.500%	13.500%	7.603%	13.500%
Species: Spring/Summer Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	2.500%	2.500%	2.500%	9.000%	9.000%
b) Sport	--	--	--	0.100%	0.100%
British Columbia					
a) Commercial	5.000%	5.000%	5.000%	11.000%	11.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
Subtotal Alaska/B.C. harvest	8.000%	8.000%	8.000%	21.100%	21.100%
Washington ocean					
a) Commercial	1.000%	1.000%	1.000%	4.000%	4.000%
b) Sport	1.000%	1.000%	1.000%	1.000%	1.000%
Washington Puget Sound					
a) Commercial	0.500%	0.500%	0.500%	0.010%	0.010%
b) Sport	--	--	--	0.030%	0.030%
Oregon					
a) Commercial	0.500%	0.500%	0.500%	1.000%	1.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	NA	NA	NA	NA	NA
Columbia Basin inland					
a) Freshwater sport	20.000%	20.000%	20.000%	10.000%	10.000%
b) Gillnet	2.000%	2.000%	2.000%	10.000%	10.000%
c) Tribal	7.000%	7.000%	7.000%	--	--
Other	3.000%	3.000%	3.000%	--	--
Total Harvest	43.500%	43.500%	43.500%	48.140%	48.140%
Hatchery requirement	23.166%	23.166%	23.166%	8.837%	8.837%
Hatchery surplus market	16.667%	16.667%	16.667%	21.512%	21.512%
Hatchery surplus carcass	16.667%	16.667%	16.667%	21.512%	21.512%

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Fall Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	6.000%	6.000%	6.000%	1.500%	NA
b) Sport	0.010%	0.010%	0.010%	--	NA
British Columbia					
a) Commercial	25.000%	25.000%	25.000%	20.000%	NA
b) Sport	2.000%	2.000%	2.000%	3.000%	NA
Subtotal Alaska/B.C. harvest	33.010%	33.010%	33.010%	24.500%	NA
Washington ocean					
a) Commercial	9.000%	9.000%	9.000%	12.000%	NA
b) Sport	4.000%	4.000%	4.000%	10.000%	NA
Washington Puget Sound					
a) Commercial	0.001%	0.001%	0.001%	--	NA
b) Sport	0.001%	0.001%	0.001%	--	NA
Oregon					
a) Commercial	3.000%	3.000%	3.000%	3.000%	NA
b) Sport	1.000%	1.000%	1.000%	1.000%	NA
California					
a) Commercial	0.001%	0.001%	0.001%	0.500%	NA
b) Sport	0.001%	0.001%	0.001%	0.100%	NA
Available for allocation inriver	NA	NA	NA	NA	NA
Columbia Basin inland					
a) Freshwater sport	2.000%	2.000%	2.000%	5.000%	NA
b) Gillnet	24.000%	24.000%	24.000%	11.000%	NA
c) Tribal	--	--	--	--	NA
Other	0.290%	0.290%	0.290%	--	NA
Total Harvest	76.304%	76.304%	76.304%	67.100%	NA
Hatchery requirement	14.286%	14.286%	14.286%	26.786%	NA
Hatchery surplus market	4.705%	4.705%	4.705%	3.057%	NA
Hatchery surplus carcass	4.705%	4.705%	4.705%	3.057%	NA

Species: Summer/Winter Steelhead

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
British Columbia					
a) Commercial	1.000%	1.000%	1.000%	1.000%	1.000%
b) Sport	--	--	--	--	--
Subtotal Alaska/B.C. harvest	1.030%	1.030%	1.030%	1.030%	1.030%
Washington ocean					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Washington Puget Sound					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Oregon					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	NA	NA	NA	NA	NA
Columbia Basin inland					
a) Freshwater sport	10.000%	10.000%	10.000%	45.000%	45.000%
b) Gillnet	--	--	--	--	--
c) Tribal	35.000%	35.000%	35.000%	--	--
Other	--	--	--	--	--
Total Harvest	46.060%	46.060%	46.060%	46.060%	46.060%
Hatchery requirement	17.143%	17.143%	17.143%	30.000%	30.000%
Hatchery surplus market	18.399%	18.399%	18.399%	11.970%	11.970%
Hatchery surplus carcass	18.399%	18.399%	18.399%	11.970%	11.970%

- Notes: 1. Expressed as percent of fish surviving-to-fisheries.
2. See text, section on survival rates and contribution to fisheries.
3. Hatchery requirements:
a) Rates expressed as percent of smolts released.
b) For hatchery purposes, at least two spawners (one male and one female) are required for future egg and smolt production. Each coho and steelhead female spawner produces about 2,500 eggs, while chinook produce 3,500 or more eggs. Hatchery egg to smolt survival tends to be about 80 percent. In order to provide some flexibility in hatchery spawner requirements, three future spawners per spawning pair are used in these calculations. Example for coho at 0.01 survival rate equals 25 surviving adults; divide 3 required spawners by 25 equals 12 percent of adults required for hatchery purposes, etc. At 0.012, the requirement is 10 percent ($3 \div [0.012 \times 2,500] = 0.10$). At 0.0012, the requirement is 100 percent.

Distributional Assumptions (with NMFS Cap in place and 1970's-1990's survival rates and assumed distribution that meets treaty obligations)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Coho					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	NA	--	--	0.001%	--
b) Sport	NA	--	--	--	--
British Columbia					
a) Commercial	NA	2.000%	2.000%	4.500%	2.000%
b) Sport	NA	0.200%	0.200%	0.500%	0.200%
Subtotal Alaska/B.C. harvest	NA	2.200%	2.200%	5.001%	2.200%
Washington ocean					
a) Commercial (0.33% tribal)	NA	0.500%	0.500%	2.005%	1.000%
b) Sport	NA	10.000%	10.000%	15.000%	20.000%
Washington Puget Sound					
a) Commercial	NA	--	--	0.050%	--
b) Sport	NA	--	--	0.050%	--
Oregon					
a) Commercial	NA	5.000%	5.000%	12.000%	10.000%
b) Sport	NA	6.500%	6.500%	12.000%	13.000%
California					
a) Commercial	NA	1.500%	1.500%	1.000%	3.000%
b) Sport	NA	1.000%	1.000%	0.500%	2.000%
Available for allocation inriver	NA	87.800%	87.800%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	NA	0.500%	0.500%	5.000%	1.000%
Tributary	NA	--	--	--	--
b) Gillnet	NA	5.000%	5.000%	27.389%	10.000%
c) Tribal (50% of allocation)	NA	43.900%	43.900%	--	--
Other	NA	0.400%	0.400%	--	0.800%
Total Harvest	NA	76.500%	76.500%	79.995%	63.000%
Hatchery requirement	NA	10.000%	10.000%	4.800%	10.000%
Hatchery surplus market	NA	6.750%	6.750%	7.603%	13.500%
Hatchery surplus carcass	NA	6.750%	6.750%	7.603%	13.500%
Species: Spring/Summer Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	2.500%	2.500%	2.500%	9.000%	9.000%
b) Sport	--	--	--	0.100%	0.100%
British Columbia					
a) Commercial	5.000%	5.000%	5.000%	11.000%	11.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
Subtotal Alaska/B.C. harvest	8.000%	8.000%	8.000%	21.100%	21.100%
Washington ocean					
a) Commercial	1.000%	1.000%	1.000%	4.000%	4.000%
b) Sport	1.000%	1.000%	1.000%	1.000%	1.000%
Washington Puget Sound					
a) Commercial	0.500%	0.500%	0.500%	0.010%	0.010%
b) Sport	--	--	--	0.030%	0.030%
Oregon					
a) Commercial	0.500%	0.500%	0.500%	1.000%	1.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	65.334%	65.334%	65.334%	63.023%	63.023%
Columbia Basin inland					
a) Freshwater sport					
Mainstem	--	--	--	10.000%	10.000%
Tributary	--	--	--	--	--
b) Gillnet	--	--	--	10.000%	10.000%
c) Tribal (5% of allocation)	3.267%	3.267%	3.267%	--	--
Other	3.000%	3.000%	3.000%	--	--
Total Harvest	17.767%	17.767%	17.767%	48.140%	48.140%
Hatchery requirement	23.166%	23.166%	23.166%	8.837%	8.837%
Hatchery surplus market	29.534%	29.534%	29.534%	21.512%	21.512%
Hatchery surplus carcass	29.534%	29.534%	29.534%	21.512%	21.512%

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Fall Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	6.000%	6.000%	6.000%	1.500%	NA
b) Sport	0.010%	0.010%	0.010%	--	NA
British Columbia					
a) Commercial	25.000%	25.000%	25.000%	20.000%	NA
b) Sport	2.000%	2.000%	2.000%	3.000%	NA
Subtotal Alaska/B.C. harvest	33.010%	33.010%	33.010%	24.500%	NA
Washington ocean					
a) Commercial (3.00% tribal)	4.500%	4.500%	4.500%	12.000%	NA
b) Sport	2.000%	2.000%	2.000%	10.000%	NA
Washington Puget Sound					
a) Commercial	0.001%	0.001%	0.001%	--	NA
b) Sport	0.001%	0.001%	0.001%	--	NA
Oregon					
a) Commercial	1.500%	1.500%	1.500%	3.000%	NA
b) Sport	0.500%	0.500%	0.500%	1.000%	NA
California					
a) Commercial	0.001%	0.001%	0.001%	0.500%	NA
b) Sport	0.001%	0.001%	0.001%	0.100%	NA
Available for allocation inriver	52.704%	52.704%	52.704%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	1.000%	1.000%	1.000%	5.000%	NA
Tributary	--	--	--	--	NA
b) Gillnet	12.000%	12.000%	12.000%	11.000%	NA
c) Tribal (50% of allocation)	26.352%	26.352%	26.352%	--	NA
Other	0.145%	0.145%	0.145%	--	NA
Total Harvest	81.009%	81.009%	81.009%	67.100%	NA
Hatchery requirement	14.286%	14.286%	14.286%	26.786%	NA
Hatchery surplus market	2.353%	2.353%	2.353%	3.057%	NA
Hatchery surplus carcass	2.353%	2.353%	2.353%	3.057%	NA
Species: Summer/Winter Steelhead					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
British Columbia					
a) Commercial	1.000%	1.000%	1.000%	1.000%	1.000%
b) Sport	--	--	--	--	--
Subtotal Alaska/B.C. harvest	1.030%	1.030%	1.030%	1.030%	1.030%
Washington ocean					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Washington Puget Sound					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Oregon					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	81.797%	81.797%	81.797%	68.940%	68.940%
Columbia Basin inland (60/40)					
a) Freshwater sport (30% of allocation)					
Mainstem	6.135%	6.135%	6.135%	45.000%	45.000%
Tributary	18.404%	18.404%	18.404%	--	--
b) Gillnet	--	--	--	--	--
c) Tribal (20% of allocation)	16.359%	16.359%	16.359%	--	--
Other	--	--	--	--	--
Total Harvest	41.959%	41.959%	41.959%	46.060%	46.060%
Hatchery requirement	17.143%	17.143%	17.143%	30.000%	30.000%
Hatchery surplus market	20.449%	20.449%	20.449%	11.970%	11.970%
Hatchery surplus carcass	20.449%	20.449%	20.449%	11.970%	11.970%

- Notes:
1. Expressed as percent of fish surviving-to-fisheries.
 2. See text, section on survival rates and contribution to fisheries.
 3. For coho:
 - a) Assumes treaty allocation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery and tribal obligations, reduce historic lower U.S. allocation to 50%.
 4. For spring/summer chinook:
 - a) Assumes treaty allocation of 5%. (Between 25,000 and 50,000 inriver runs - in this scenario about 50,000 adults will be entering the river.
 - b) Assumes that lower U.S. ocean catches are incidental and will remain as historic catches.
 5. For fall chinook:
 - a) Assumes treaty obligation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery requirements and treaty obligations, reduce lower U.S. allocation to 50%.
 6. For steelhead:
 - a) Assumed allocation between tribal fishery and inriver recreation fishery for future runs (Mike Matylewich of Columbia River Intertribal Fish Commission) (Inriver catches not to exceed 50%.)
 7. Hatchery requirements:
 - a) Rates expressed as percent of smolts released.
 - b) For hatchery purposes, at least two spawners (one male and one female) are required for future egg and smolt production. Each coho and steelhead female spawner produces about 2,500 eggs, while chinook produce 3,500 or more eggs. Hatchery egg to smolt survival tends to be about 80 percent. In order to provide some flexibility in hatchery spawner requirements, three future spawners per spawning pair are used in these calculations. Example for coho at 0.01 survival rate equals 25 surviving adults; divide 3 required spawners by 25 equals 12 percent of adults required for hatchery purposes, etc. At 0.012, the requirement is 10 percent ($3 \div [0.012 \times 2,500] = 0.10$). At 0.0012, the requirement is 100 percent.

Distributional Assumptions (1980's Actual and assumed distribution that meets treaty obligations)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Coho					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	NA	--	--	0.001%	--
b) Sport	NA	--	--	--	--
British Columbia					
a) Commercial	NA	2.000%	2.000%	4.500%	2.000%
b) Sport	NA	0.200%	0.200%	0.500%	0.200%
Subtotal Alaska/B.C. harvest	NA	2.200%	2.200%	5.001%	2.200%
Washington ocean					
a) Commercial (0.33% tribal)	NA	0.511%	0.511%	2.020%	1.022%
b) Sport	NA	10.223%	10.223%	15.110%	20.446%
Washington Puget Sound					
a) Commercial	NA	--	--	0.050%	--
b) Sport	NA	--	--	0.050%	--
Oregon					
a) Commercial	NA	5.112%	5.112%	12.088%	10.223%
b) Sport	NA	6.645%	6.645%	12.088%	13.290%
California					
a) Commercial	NA	1.533%	1.533%	1.007%	3.067%
b) Sport	NA	1.022%	1.022%	0.504%	2.045%
Available for allocation inriver	NA	89.759%	89.759%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	NA	0.511%	0.511%	5.037%	1.022%
Tributary	NA	--	--	--	--
b) Gillnet	NA	5.112%	5.112%	27.590%	10.223%
c) Tribal (50% of allocation)	NA	44.880%	44.880%	--	--
Other	NA	0.409%	0.409%	--	0.818%
Total Harvest	NA	78.158%	78.158%	80.544%	64.357%
Hatchery requirement	NA	8.041%	8.041%	4.139%	8.041%
Hatchery surplus market	NA	6.901%	6.901%	7.658%	13.801%
Hatchery surplus carcass	NA	6.901%	6.901%	7.658%	13.801%
Species: Spring/Summer Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	2.500%	2.500%	2.500%	9.000%	9.000%
b) Sport	--	--	--	0.100%	0.100%
British Columbia					
a) Commercial	5.000%	5.000%	5.000%	11.000%	11.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
Subtotal Alaska/B.C. harvest	8.000%	8.000%	8.000%	21.100%	21.100%
Washington ocean					
a) Commercial	1.000%	1.000%	1.000%	4.000%	4.000%
b) Sport	1.000%	1.000%	1.000%	1.000%	1.000%
Washington Puget Sound					
a) Commercial	0.500%	0.500%	0.500%	0.010%	0.010%
b) Sport	--	--	--	0.030%	0.030%
Oregon					
a) Commercial	0.500%	0.500%	0.500%	1.000%	1.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	66.665%	66.665%	66.665%	63.408%	63.475%
Columbia Basin inland					
a) Freshwater sport					
Mainstem	--	--	--	10.000%	10.000%
Tributary	--	--	--	--	--
b) Gillnet	--	--	--	10.000%	10.000%
c) Tribal (5% of allocation)	3.333%	3.333%	3.333%	--	--
Other	3.000%	3.000%	3.000%	--	--
Total Harvest	17.833%	17.833%	17.833%	48.140%	48.140%
Hatchery requirement	21.835%	21.835%	21.835%	8.452%	8.385%
Hatchery surplus market	30.166%	30.166%	30.166%	21.704%	21.738%
Hatchery surplus carcass	30.166%	30.166%	30.166%	21.704%	21.738%

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Fall Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	6.000%	6.000%	6.000%	1.500%	NA
b) Sport	0.010%	0.010%	0.010%	--	NA
British Columbia					
a) Commercial	25.000%	25.000%	25.000%	20.000%	NA
b) Sport	2.000%	2.000%	2.000%	3.000%	NA
Subtotal Alaska/B.C. harvest	33.010%	33.010%	33.010%	24.500%	NA
Washington ocean					
a) Commercial (3.00% tribal)	4.711%	4.711%	4.711%	13.089%	NA
b) Sport	2.094%	2.094%	2.094%	10.907%	NA
Washington Puget Sound					
a) Commercial	0.001%	0.001%	0.001%	--	NA
b) Sport	0.001%	0.001%	0.001%	--	NA
Oregon					
a) Commercial	1.570%	1.570%	1.570%	3.272%	NA
b) Sport	0.523%	0.523%	0.523%	1.091%	NA
California					
a) Commercial	0.001%	0.001%	0.001%	0.545%	NA
b) Sport	0.001%	0.001%	0.001%	0.109%	NA
Available for allocation inriver	55.173%	55.174%	55.174%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	1.047%	1.047%	1.047%	5.454%	NA
Tributary	--	--	--	--	NA
b) Gillnet	12.562%	12.562%	12.562%	11.998%	NA
c) Tribal (50% of allocation)	27.587%	27.587%	27.587%	--	NA
Other	0.152%	0.152%	0.152%	--	NA
Total Harvest	83.258%	83.258%	83.258%	70.965%	NA
Hatchery requirement	11.817%	11.816%	11.816%	22.366%	NA
Hatchery surplus market	2.463%	2.463%	2.463%	3.334%	NA
Hatchery surplus carcass	2.463%	2.463%	2.463%	3.334%	NA
Species: Summer/Winter Steelhead					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
British Columbia					
a) Commercial	1.000%	1.000%	1.000%	1.000%	1.000%
b) Sport	--	--	--	--	--
Subtotal Alaska/B.C. harvest	1.030%	1.030%	1.030%	1.030%	1.030%
Washington ocean					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Washington Puget Sound					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Oregon					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	91.223%	91.223%	91.223%	85.436%	85.436%
Columbia Basin inland (60/40)					
a) Freshwater sport (30% of allocation)					
Mainstem	6.842%	6.842%	6.842%	45.000%	45.000%
Tributary	20.525%	20.525%	20.525%	--	--
b) Gillnet	--	--	--	--	--
c) Tribal (20% of allocation)	18.245%	18.245%	18.245%	--	--
Other	--	--	--	--	--
Total Harvest	46.672%	46.672%	46.672%	46.060%	46.060%
Hatchery requirement	7.717%	7.717%	7.717%	13.504%	13.504%
Hatchery surplus market	22.806%	22.806%	22.806%	20.218%	20.218%
Hatchery surplus carcass	22.806%	22.806%	22.806%	20.218%	20.218%

- Notes:
1. Expressed as percent of fish surviving-to-fisheries.
 2. See text, section on survival rates and contribution to fisheries.
 3. For coho:
 - a) Assumes treaty allocation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery and tribal obligations, reduce historic lower U.S. allocation to 51%.
 4. For spring/summer chinook:
 - a) Assumes treaty allocation of 5%. (Between 25,000 and 50,000 inriver runs - in this scenario about 50,000 adults will be entering the river.
 - b) Assumes that lower U.S. ocean catches are incidental and will remain as historic catches.
 5. For fall chinook:
 - a) Assumes treaty obligation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery requirements and treaty obligations, reduce lower U.S. allocation to 52%.
 6. For steelhead:
 - a) Assumed allocation between tribal fishery and inriver recreation fishery for future runs (Mike Matylewich of Columbia River Intertribal Fish Commission) (Inriver catches not to exceed 50%.)
 7. Hatchery requirements:
 - a) Rates expressed as percent of smolts released.
 - b) For hatchery purposes, at least two spawners (one male and one female) are required for future egg and smolt production. Each coho and steelhead female spawner produces about 2,500 eggs, while chinook produce 3,500 or more eggs. Hatchery egg to smolt survival tends to be about 80 percent. In order to provide some flexibility in hatchery spawner requirements, three future spawners per spawning pair are used in these calculations. Example for coho at 0.01 survival rate equals 25 surviving adults; divide 3 required spawners by 25 equals 12 percent of adults required for hatchery purposes, etc. At 0.012, the requirement is 10 percent ($3 \div [0.012 \times 2,500] = 0.10$). At 0.0012, the requirement is 100 percent.

Distributional Assumptions (Doubling of Runs and assumed distribution that meets treaty obligations)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Coho					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	NA	--	--	0.001%	--
b) Sport	NA	--	--	--	--
British Columbia					
a) Commercial	NA	2.000%	2.000%	4.500%	2.000%
b) Sport	NA	0.200%	0.200%	0.500%	0.200%
Subtotal Alaska/B.C. harvest	NA	2.200%	2.200%	5.001%	2.200%
Washington ocean					
a) Commercial (0.33% tribal)	NA	0.534%	0.534%	2.066%	1.068%
b) Sport	NA	10.681%	10.681%	15.454%	21.362%
Washington Puget Sound					
a) Commercial	NA	--	--	0.052%	--
b) Sport	NA	--	--	0.052%	--
Oregon					
a) Commercial	NA	5.341%	5.341%	12.363%	10.681%
b) Sport	NA	6.943%	6.943%	12.363%	13.885%
California					
a) Commercial	NA	1.602%	1.602%	1.030%	3.204%
b) Sport	NA	1.068%	1.068%	0.515%	2.136%
Available for allocation inriver	NA	93.780%	93.780%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	NA	0.534%	0.534%	5.151%	1.068%
Tributary	NA	--	--	--	--
b) Gillnet	NA	5.341%	5.341%	28.218%	10.681%
c) Tribal (50% of allocation)	NA	46.890%	46.890%	--	--
Other	NA	0.427%	0.427%	--	0.854%
Total Harvest	NA	81.560%	81.560%	82.265%	67.141%
Hatchery requirement	NA	4.020%	4.020%	2.070%	4.020%
Hatchery surplus market	NA	7.210%	7.210%	7.833%	14.419%
Hatchery surplus carcass	NA	7.210%	7.210%	7.833%	14.419%
Species: Spring/Summer Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	2.500%	2.500%	2.500%	9.000%	9.000%
b) Sport	--	--	--	0.100%	0.100%
British Columbia					
a) Commercial	5.000%	5.000%	5.000%	11.000%	11.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
Subtotal Alaska/B.C. harvest	8.000%	8.000%	8.000%	21.100%	21.100%
Washington ocean					
a) Commercial	1.000%	1.000%	1.000%	4.000%	4.000%
b) Sport	1.000%	1.000%	1.000%	1.000%	1.000%
Washington Puget Sound					
a) Commercial	0.500%	0.500%	0.500%	0.010%	0.010%
b) Sport	--	--	--	0.030%	0.030%
Oregon					
a) Commercial	0.500%	0.500%	0.500%	1.000%	1.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	77.583%	77.583%	77.583%	67.634%	67.668%
Columbia Basin inland					
a) Freshwater sport					
Mainstem	23.009%	23.009%	23.009%	10.000%	10.000%
Tributary	7.670%	7.670%	7.670%	--	--
b) Gillnet	5.113%	5.113%	5.113%	10.000%	10.000%
c) Tribal (50% of allocation)	38.791%	38.791%	38.791%	--	--
Other	3.000%	3.000%	3.000%	--	--
Total Harvest	89.083%	89.083%	89.083%	48.140%	48.140%
Hatchery requirement	10.917%	10.917%	10.917%	4.226%	4.192%
Hatchery surplus market	0.000%	-0.000%	-0.000%	23.817%	23.834%
Hatchery surplus carcass	0.000%	-0.000%	-0.000%	23.817%	23.834%

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Fall Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	6.000%	6.000%	6.000%	1.500%	NA
b) Sport	0.010%	0.010%	0.010%	--	NA
British Columbia					
a) Commercial	25.000%	25.000%	25.000%	20.000%	NA
b) Sport	2.000%	2.000%	2.000%	3.000%	NA
Subtotal Alaska/B.C. harvest	33.010%	33.010%	33.010%	24.500%	NA
Washington ocean					
a) Commercial (3.00% tribal)	5.215%	5.215%	5.215%	15.843%	NA
b) Sport	2.318%	2.318%	2.318%	13.203%	NA
Washington Puget Sound					
a) Commercial	0.001%	0.001%	0.001%	--	NA
b) Sport	0.001%	0.001%	0.001%	--	NA
Oregon					
a) Commercial	1.738%	1.738%	1.738%	3.961%	NA
b) Sport	0.579%	0.579%	0.579%	1.320%	NA
California					
a) Commercial	0.001%	0.001%	0.001%	0.660%	NA
b) Sport	0.001%	0.001%	0.001%	0.132%	NA
Available for allocation inriver	61.082%	61.082%	61.082%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	1.159%	1.159%	1.159%	6.601%	NA
Tributary	--	--	--	--	NA
b) Gillnet	13.907%	13.907%	13.907%	14.523%	NA
c) Tribal (50% of allocation)	30.541%	30.541%	30.541%	--	NA
Other	0.168%	0.168%	0.168%	--	NA
Total Harvest	88.639%	88.639%	88.639%	80.744%	NA
Hatchery requirement	5.908%	5.908%	5.908%	11.183%	NA
Hatchery surplus market	2.727%	2.727%	2.727%	4.036%	NA
Hatchery surplus carcass	2.727%	2.727%	2.727%	4.036%	NA
Species: Summer/Winter Steelhead					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
British Columbia					
a) Commercial	1.000%	1.000%	1.000%	1.000%	1.000%
b) Sport	--	--	--	--	--
Subtotal Alaska/B.C. harvest	1.030%	1.030%	1.030%	1.030%	1.030%
Washington ocean					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Washington Puget Sound					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Oregon					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	95.082%	95.082%	95.082%	92.188%	92.188%
Columbia Basin inland (50/50)					
a) Freshwater sport (25% of allocation)					
Mainstem	5.943%	5.943%	5.943%	45.000%	45.000%
Tributary	17.828%	17.828%	17.828%	--	--
b) Gillnet	--	--	--	--	--
c) Tribal (25% of allocation)	23.770%	23.770%	23.770%	--	--
Other	--	--	--	--	--
Total Harvest	48.601%	48.601%	48.601%	46.060%	46.060%
Hatchery requirement	3.858%	3.858%	3.858%	6.752%	6.752%
Hatchery surplus market	23.770%	23.770%	23.770%	23.594%	23.594%
Hatchery surplus carcass	23.770%	23.770%	23.770%	23.594%	23.594%

- Notes:
1. Expressed as percent of fish surviving-to-fisheries.
 2. See text, section on survival rates and contribution to fisheries.
 3. For coho:
 - a) Assumes treaty allocation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery and tribal obligations, reduce historic lower U.S. allocation to 53%.
 4. For spring/summer chinook:
 - a) Assumes treaty allocation of 50%. (Excess of 112% of 115,000 inriver runs 50% treaty Indian and 50% non-treaty - In this scenario about 130,000 adults will be entering the river.
 - b) Assumes that lower U.S. ocean catches are incidental and will remain as historic levels.
 5. For fall chinook:
 - a) Assumes treaty obligation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery requirements and treaty obligations, reduce lower U.S. allocation to 58%.
 6. For steelhead:
 - a) Assumed allocation between tribal fishery and inriver recreation fishery for future runs (Mike Matylewich of Columbia River Intertribal Fish Commission) (Inriver catches not to exceed 50%.)
 7. Hatchery requirements:
 - a) Rates expressed as percent of smolts released.
 - b) For hatchery purposes, at least two spawners (one male and one female) are required for future egg and smolt production. Each coho and steelhead female spawner produces about 2,500 eggs, while chinook produce 3,500 or more eggs. Hatchery egg to smolt survival tends to be about 80 percent. In order to provide some flexibility in hatchery spawner requirements, three future spawners per spawning pair are used in these calculations. Example for coho at 0.01 survival rate equals 25 surviving adults; divide 3 required spawners by 25 equals 12 percent of adults required for hatchery purposes, etc. At 0.012, the requirement is 10 percent ($3 \div [0.012 \times 2,500] = 0.10$). At 0.0012, the requirement is 100 percent.

Distributional Assumptions (Runs and survival rates of the 1990's)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Coho					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	NA	--	--	0.001%	--
b) Sport	NA	--	--	--	--
British Columbia					
a) Commercial	NA	2.000%	2.000%	4.500%	2.000%
b) Sport	NA	0.200%	0.200%	0.500%	0.200%
Subtotal Alaska/B.C. harvest	NA	2.200%	2.200%	5.001%	2.200%
Washington ocean					
a) Commercial (0.33% tribal)	NA	0.101%	0.101%	1.845%	0.772%
b) Sport	NA	2.027%	2.027%	13.803%	15.444%
Washington Puget Sound					
a) Commercial	NA	--	--	0.046%	--
b) Sport	NA	--	--	0.046%	--
Oregon					
a) Commercial	NA	1.014%	1.014%	11.042%	7.722%
b) Sport	NA	1.318%	1.318%	11.042%	10.039%
California					
a) Commercial	NA	0.304%	0.304%	0.920%	2.317%
b) Sport	NA	0.203%	0.203%	0.460%	1.544%
Available for allocation inriver	NA	17.800%	17.800%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	NA	0.101%	0.101%	4.601%	0.772%
Tributary	NA	--	--	--	--
b) Gillnet	NA	1.014%	1.014%	25.203%	7.722%
c) Tribal (50% of allocation)	NA	8.900%	8.900%	--	--
Other	NA	0.081%	0.081%	--	0.618%
Total Harvest	NA	17.263%	17.263%	74.009%	49.150%
Hatchery requirement	NA	80.000%	80.000%	12.000%	30.000%
Hatchery surplus market	NA	1.368%	1.368%	6.996%	10.425%
Hatchery surplus carcass	NA	1.368%	1.368%	6.996%	10.425%
Species: Spring/Summer Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	2.500%	2.500%	2.500%	9.000%	9.000%
b) Sport	--	--	--	0.100%	0.100%
British Columbia					
a) Commercial	5.000%	5.000%	5.000%	11.000%	11.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
Subtotal Alaska/B.C. harvest	8.000%	8.000%	8.000%	21.100%	21.100%
Washington ocean					
a) Commercial	1.000%	1.000%	1.000%	4.000%	4.000%
b) Sport	1.000%	1.000%	1.000%	1.000%	1.000%
Washington Puget Sound					
a) Commercial	0.500%	0.500%	0.500%	0.010%	0.010%
b) Sport	--	--	--	0.030%	0.030%
Oregon					
a) Commercial	0.500%	0.500%	0.500%	1.000%	1.000%
b) Sport	0.500%	0.500%	0.500%	1.000%	1.000%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	2.786%	2.786%	2.786%	47.370%	47.370%
Columbia Basin inland					
a) Freshwater sport					
Mainstem	--	--	--	10.000%	10.000%
Tributary	--	--	--	--	--
b) Gillnet	--	--	--	10.000%	10.000%
c) Tribal (1% of allocation)	0.028%	0.028%	0.028%	--	--
Other	2.758%	2.758%	2.758%	--	--
Total Harvest	14.286%	14.286%	14.286%	48.140%	48.140%
Hatchery requirement	85.714%	85.714%	85.714%	24.490%	24.490%
Hatchery surplus market	--	--	--	13.685%	13.685%
Hatchery surplus carcass	--	--	--	13.685%	13.685%

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>
Species: Fall Chinook					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	6.000%	6.000%	6.000%	1.500%	NA
b) Sport	0.010%	0.010%	0.010%	--	NA
British Columbia					
a) Commercial	25.000%	25.000%	25.000%	20.000%	NA
b) Sport	2.000%	2.000%	2.000%	3.000%	NA
Subtotal Alaska/B.C. harvest	33.010%	33.010%	33.010%	24.500%	NA
Washington ocean					
a) Commercial (3.00% tribal)	3.890%	3.890%	3.890%	10.152%	NA
b) Sport	1.729%	1.729%	1.729%	8.460%	NA
Washington Puget Sound					
a) Commercial	0.000%	0.000%	0.000%	--	NA
b) Sport	0.000%	0.000%	0.000%	--	NA
Oregon					
a) Commercial	1.297%	1.297%	1.297%	2.538%	NA
b) Sport	0.432%	0.432%	0.432%	0.846%	NA
California					
a) Commercial	0.000%	0.000%	0.000%	0.423%	NA
b) Sport	0.000%	0.000%	0.000%	0.085%	NA
Available for allocation inriver	45.561%	45.561%	45.561%	NA	NA
Columbia Basin inland					
a) Freshwater sport					
Mainstem	0.864%	0.864%	0.864%	4.230%	NA
Tributary	--	--	--	--	NA
b) Gillnet	10.374%	10.374%	10.374%	9.306%	NA
c) Tribal (50% of allocation)	22.781%	22.781%	22.781%	--	NA
Other	0.125%	0.125%	0.125%	--	NA
Total Harvest	74.504%	74.504%	74.504%	60.541%	NA
Hatchery requirement	21.429%	21.429%	21.429%	34.286%	NA
Hatchery surplus market	2.034%	2.034%	2.034%	2.586%	NA
Hatchery surplus carcass	2.034%	2.034%	2.034%	2.586%	NA
Species: Summer/Winter Steelhead					
<u>West Coast Ocean</u>					
Alaska					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
British Columbia					
a) Commercial	1.000%	1.000%	1.000%	1.000%	1.000%
b) Sport	--	--	--	--	--
Subtotal Alaska/B.C. harvest	1.030%	1.030%	1.030%	1.030%	1.030%
Washington ocean					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Washington Puget Sound					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Oregon					
a) Commercial	--	--	--	--	--
b) Sport	0.030%	0.030%	0.030%	0.030%	0.030%
California					
a) Commercial	--	--	--	--	--
b) Sport	--	--	--	--	--
Available for allocation inriver	74.940%	74.940%	74.940%	38.940%	38.940%
Columbia Basin inland (60/40)					
a) Freshwater sport (30% of allocation)					
Mainstem	5.621%	5.621%	5.621%	35.000%	35.000%
Tributary	16.862%	16.862%	16.862%	--	--
b) Gillnet	--	--	--	--	--
c) Tribal (20% of allocation)	14.988%	14.988%	14.988%	--	--
Other	--	--	--	--	--
Total Harvest	38.530%	38.530%	38.530%	36.060%	36.060%
Hatchery requirement	24.000%	24.000%	24.000%	60.000%	60.000%
Hatchery surplus market	18.735%	18.735%	18.735%	1.970%	1.970%
Hatchery surplus carcass	18.735%	18.735%	18.735%	1.970%	1.970%

- Notes:
1. Expressed as percent of fish surviving-to-fisheries.
 2. See text, section on survival rates and contribution to fisheries.
 3. For coho:
 - a) Assumes treaty and spawner allocation of 50% of available harvest after hatchery requirements are met.
 - b) In order to meet hatchery and tribal obligations, reduce historic lower U.S. allocation to 10%.
 4. For spring/summer chinook:
 - a) In this scenario, the inriver runs may be about 25,000 or less. Assumes a minimum of 1% for treaty harvest.
 - b) Assumes that lower U.S. ocean catches are incidental and will remain as historic levels.
 5. For fall chinook:
 - a) Assumes treaty obligation of 50% of available harvest after hatchery and spawner requirements are met.
 - b) In order to meet hatchery requirements and treaty obligations, reduce lower U.S. harvest to 43%.
 6. For steelhead:
 - a) Assumed allocation between tribal fishery and inriver recreation fishery for future runs (Mike Matylewich of Columbia River Intertribal Fish Commission) (Inriver catches not to exceed 50%.)
 7. Hatchery requirements:
 - a) Rates expressed as percent of smolts released.
 - b) For hatchery purposes, at least two spawners (one male and one female) are required for future egg and smolt production. Each coho and steelhead female spawner produces about 2,500 eggs, while chinook produce 3,500 or more eggs. Hatchery egg to smolt survival tends to be about 80 percent. In order to provide some flexibility in hatchery spawner requirements, three future spawners per spawning pair are used in these calculations. Example for coho at 0.01 survival rate equals 25 surviving adults; divide 3 required spawners by 25 equals 12 percent of adults required for hatchery purposes, etc. At 0.012, the requirement is 10 percent ($3 \div [0.012 \times 2,500] = 0.10$). At 0.0012, the requirement is 100 percent.

APPENDIX 4.C

Economic Value Assumptions

Economic Assumptions

	Commercial Per Fish		Recreational Per Day		Number of Days Per Fish	Recreational Per Fish		
	Economic Impact	Economic Value	Economic Impact	Economic Value		Economic Impact	Economic Value	
Species: Coho								
Ocean								
Alaska	21.29	10.20	60.00	51.43	1.00	60.00	51.43	
British Columbia	18.15	8.70	60.00	51.43	1.00	60.00	51.43	
Washington ocean	12.49	5.99	60.00	51.43	1.00	60.00	51.43	
Washington Puget Sound	16.90	8.67	60.00	51.43	1.00	60.00	51.43	
Oregon	17.43	9.17	60.00	51.43	1.00	60.00	51.43	
California	20.65	9.35	60.00	51.43	1.00	60.00	51.43	
Columbia Basin inland								
Freshwater sport								
Mainstem	--	--	60.00	51.43	1.00	60.00	51.43	
Tributary	--	--	60.00	51.43	1.00	60.00	51.43	
Gillnet	15.15	8.99	--	--	--	--	--	
Tribal	15.15	8.99	--	--	--	--	--	
Other	--	--	--	--	--	--	--	
Hatchery surplus market	11.94	7.28	--	--	--	--	--	
Hatchery carcass	2.00	1.23	--	--	--	--	--	
Species: Spring/Summer Chinook								
Ocean								
Alaska	69.15	33.83	60.00	51.43	1.00	60.00	51.43	
British Columbia	69.99	34.30	60.00	51.43	1.00	60.00	51.43	
Washington ocean	48.31	23.68	60.00	51.43	1.00	60.00	51.43	
Washington Puget Sound	41.22	21.19	60.00	51.43	1.00	60.00	51.43	
Oregon	42.05	21.65	60.00	51.43	1.00	60.00	51.43	
California	--	--	60.00	51.43	1.00	60.00	51.43	
Columbia Basin inland								
Freshwater sport								
Mainstem	--	--	60.00	51.43	2.00	120.00	102.86	
Tributary	--	--	60.00	63.23	2.00	120.00	126.46	
Gillnet	98.59	49.95	--	--	--	--	--	
Tribal	98.59	49.95	--	--	--	--	--	
Other	--	--	--	--	--	--	--	
Hatchery surplus market	49.12	26.87	--	--	--	--	--	
Hatchery carcass	2.00	1.23	--	--	--	--	--	
Species: Fall Chinook								
Ocean								
Alaska	69.15	33.83	60.00	51.43	1.00	60.00	51.43	
British Columbia	69.99	34.30	60.00	51.43	1.00	60.00	51.43	
Washington ocean	48.31	23.68	60.00	51.43	1.00	60.00	51.43	
Washington Puget Sound	41.22	21.19	60.00	51.43	1.00	60.00	51.43	
Oregon	42.05	21.65	60.00	51.43	1.00	60.00	51.43	
California	53.80	22.53	60.00	51.43	1.00	60.00	51.43	
Columbia Basin inland								
Freshwater sport								
Mainstem	--	--	60.00	51.43	1.50	90.00	77.15	
Tributary	--	--	60.00	63.23	2.00	120.00	126.46	
Gillnet	41.22	23.53	--	--	--	--	--	
Tribal	41.22	23.53	--	--	--	--	--	
Other	--	--	--	--	--	--	--	
Hatchery surplus market	29.75	18.25	--	--	--	--	--	
Hatchery carcass	2.00	1.23	--	--	--	--	--	
Species: Summer/Winter Steelhead								
Ocean								
Alaska	--	--	60.00	52.85	1.00	60.00	52.85	
British Columbia	22.28	11.44	--	--	--	--	--	
Washington ocean	--	--	--	--	--	--	--	
Washington Puget Sound	--	--	--	--	--	--	--	
Oregon	--	--	60.00	52.85	1.00	60.00	52.85	
California	--	--	--	--	--	--	--	
Columbia Basin inland								
Freshwater sport								
Mainstem	--	--	60.00	52.85	2.00	120.00	105.70	
Tributary	--	--	60.00	63.23	2.00	120.00	126.46	
Gillnet	--	--	--	--	--	--	--	
Tribal	16.89	9.99	--	--	--	--	--	
Other	--	--	--	--	--	--	--	
Hatchery surplus market	14.21	8.73	--	--	--	--	--	
Hatchery carcass	2.00	1.23	--	--	--	--	--	

- Notes: 1. Average 1998 dollars per fish. See text for an explanation on how economic impact and value are derived.
 2. Hatchery sales include carcass and egg sales.
 3. Two days per fish harvested include released wild and retained hatchery fish. For steelhead, retained fish only, the CPUE is 0.17 fish per day (or 5.88 days per fish).

APPENDIX 4.D

Harvest Forecasts

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Coho Alternative: NIMFS Cap (1970's-1990's Actual)	Snake River	Upper Columbia	Middle Columbia	Lower Columbia	Willamette	Number of smolts released and fish harvested in area
Number of annual hatchery smolt releases	0	843,373	2,462,651	30,742,613	1,277,108	35,325,745
Wild fish contribution - % Assumption	5%	5%	5%	5%	5%	5%
- No. of releases	0	44,388	129,613	1,618,032	67,216	1,859,250
Total smolt production	0	887,761	2,592,264	32,360,645	1,344,324	37,184,995
Representative survival rate in % - Hatchery	NA	1.20%	1.20%	2.50%	1.20%	2.33%
- Wild	NA	1.20%	1.20%	2.50%	1.20%	2.33%
Number survived to adults	NA	10,653	31,107	809,016	16,132	866,908
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	NA	--	--	8	--	8
b) Sport	NA	--	--	--	--	--
British Columbia						
a) Commercial	NA	213	622	36,406	323	37,564
b) Sport	NA	21	62	4,045	32	4,161
Washington ocean						
a) Commercial	NA	53	156	16,221	161	16,591
b) Sport	NA	1,065	3,111	121,352	3,226	128,755
Washington Puget Sound						
a) Commercial	NA	--	--	405	--	405
b) Sport	NA	--	--	405	--	405
Oregon						
a) Commercial	NA	533	1,555	97,082	1,613	100,783
b) Sport	NA	692	2,022	97,082	2,097	101,894
California						
a) Commercial	NA	160	467	8,090	484	9,201
b) Sport	NA	107	311	4,045	323	4,785
Columbia Basin inland						
a) Freshwater sport						
Mainstem	NA	53	156	40,451	161	40,821
Tributary	NA	--	--	--	--	--
b) Gillnet	NA	533	1,555	221,581	1,613	225,283
c) Tribal C & S	NA	4,677	13,656	--	--	18,333
Other	NA	43	124	--	129	296
Hatchery						
Hatchery requirement	NA	1,065	3,111	38,833	1,613	44,622
Hatchery surplus market	NA	719	2,100	61,505	2,178	66,502
Hatchery surplus carcass	NA	719	2,100	61,505	2,178	66,502

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Coho Alternative: 80's Actual	Snake River	Upper Columbia	Middle Columbia	Lower Columbia	Willamette	Number of smolts released and fish harvested in area
Number of annual hatchery smolt releases	0	843,373	2,462,651	30,742,613	1,277,108	35,325,745
Wild fish contribution - % Assumption	5%	5%	5%	5%	5%	5%
- No. of releases	0	44,388	129,613	1,618,032	67,216	1,859,250
Total smolt production	0	887,761	2,592,264	32,360,645	1,344,324	37,184,995
Representative survival rate in % - Hatchery	NA	1.49%	1.49%	2.90%	1.49%	2.72%
- Wild	NA	1.49%	1.49%	2.90%	1.49%	2.72%
Number survived to adults	NA	13,249	38,687	938,163	20,062	1,010,161
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	NA	--	--	9	--	9
b) Sport	NA	--	--	--	--	--
British Columbia						
a) Commercial	NA	265	774	42,217	401	43,657
b) Sport	NA	26	77	4,691	40	4,835
Washington ocean						
a) Commercial	NA	68	198	18,948	205	19,419
b) Sport	NA	1,354	3,955	141,755	4,102	151,167
Washington Puget Sound						
a) Commercial	NA	--	--	473	--	473
b) Sport	NA	--	--	473	--	473
Oregon						
a) Commercial	NA	677	1,977	113,404	2,051	118,110
b) Sport	NA	880	2,571	113,404	2,666	119,522
California						
a) Commercial	NA	203	593	9,450	615	10,862
b) Sport	NA	135	395	4,725	410	5,666
Columbia Basin inland						
a) Freshwater sport						
Mainstem	NA	68	198	47,252	205	47,722
Tributary	NA	--	--	--	--	--
b) Gillnet	NA	677	1,977	258,836	2,051	263,542
c) Tribal C & S	NA	5,946	17,362	--	--	23,309
Other	NA	54	158	--	164	376
Hatchery						
Hatchery requirement	NA	1,065	3,111	38,833	1,613	44,622
Hatchery surplus market	NA	914	2,670	71,846	2,769	78,199
Hatchery surplus carcass	NA	914	2,670	71,846	2,769	78,199

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Coho
Alternative: Run Doubling Objective

Number of smolts released and fish harvested in area

	Snake River	Upper Columbia	Middle Columbia	Lower Columbia	Willamette	
Number of annual hatchery smolt releases	0	843,373	2,462,651	30,742,613	1,277,108	35,325,745
Wild fish contribution - % Assumption	5%	5%	5%	5%	5%	5%
Total smolt production	0	843,373	2,462,651	30,742,613	1,277,108	35,325,745
Representative survival rate in % - Hatchery	NA	2.98%	2.98%	5.80%	2.98%	5.43%
- Wild	NA	2.98%	2.98%	5.80%	2.98%	5.43%
Number survived to adults	NA	26,498	77,373	1,876,326	40,125	2,020,322
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	NA	--	--	19	--	19
b) Sport	NA	--	--	--	--	--
British Columbia						
a) Commercial	NA	530	1,547	84,435	802	87,315
b) Sport	NA	53	155	9,382	80	9,670
Washington ocean						
a) Commercial	NA	142	413	38,759	429	39,742
b) Sport	NA	2,830	8,264	289,968	8,572	309,635
Washington Puget Sound						
a) Commercial	NA	--	--	967	--	967
b) Sport	NA	--	--	967	--	967
Oregon						
a) Commercial	NA	1,415	4,132	231,975	4,286	241,808
b) Sport	NA	1,840	5,372	231,975	5,571	244,758
California						
a) Commercial	NA	425	1,240	19,331	1,286	22,281
b) Sport	NA	283	826	9,666	857	11,632
Columbia Basin inland						
a) Freshwater sport	NA	142	413	96,656	429	97,639
Mainstem	NA	--	--	--	--	--
Tributary	NA	--	--	--	--	--
b) Gillnet	NA	1,415	4,132	529,463	4,286	539,296
c) Tribal C & S	NA	12,425	36,280	--	--	48,705
Other	NA	113	331	--	343	787
Hatchery						
Hatchery requirement	NA	1,065	3,111	38,833	1,613	44,622
Hatchery surplus market	NA	1,910	5,578	146,966	5,786	160,240
Hatchery surplus carcass	NA	1,910	5,578	146,966	5,786	160,240

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Coho
Alternative: Early 90's**

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	0	700,000	2,044,000	25,561,369	1,060,000	29,365,369
Wild fish contribution - % Assumption	5%	5%	5%	5%	5%	5%
- No. of releases	0	36,842	107,579	1,345,335	55,789	1,545,546
Total smolt production	0	736,842	2,151,579	26,906,704	1,115,789	30,910,915
Representative survival rate in % - Hatchery	NA	0.15%	0.15%	1.00%	0.40%	0.90%
- Wild	NA	0.15%	0.15%	1.00%	0.40%	0.90%
Number survived to adults	NA	1,105	3,227	269,067	4,463	277,863
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	NA	--	--	3	--	3
b) Sport	NA	--	--	--	--	--
British Columbia						
a) Commercial	NA	22	65	12,108	89	12,284
b) Sport	NA	2	6	1,345	9	1,363
Washington ocean						
a) Commercial	NA	1	3	4,964	34	5,003
b) Sport	NA	22	65	37,138	689	37,916
Washington Puget Sound						
a) Commercial	NA	--	--	124	--	124
b) Sport	NA	--	--	124	--	124
Oregon						
a) Commercial	NA	11	33	29,711	345	30,099
b) Sport	NA	15	43	29,711	448	30,216
California						
a) Commercial	NA	3	10	2,476	103	2,592
b) Sport	NA	2	7	1,238	69	1,316
Columbia Basin inland						
a) Freshwater sport						
Mainstem	NA	1	3	12,379	34	12,418
Tributary	NA	--	--	--	--	--
b) Gillnet	NA	11	33	67,812	345	68,201
c) Tribal C & S	NA	98	287	--	--	386
Other	NA	1	3	--	28	31
Hatchery						
Hatchery requirement	NA	884	2,582	32,288	1,339	37,093
Hatchery surplus market	NA	15	44	18,823	465	19,348
Hatchery surplus carcass	NA	15	44	18,823	465	19,348

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Spring/Summer Chinook
Alternative: NMFS Cap (1970's-1990's Actual)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	2,342,791	5,990,957	6,264,260	5,253,481	7,541,137	27,392,626
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	1,004,053	2,567,553	2,684,683	2,251,492	3,231,916	11,739,697
Total smolt production	3,346,844	8,558,510	8,948,943	7,504,973	10,773,053	39,132,323
Representative survival rate in % - Hatchery	0.37%	0.37%	0.37%	0.97%	0.97%	0.65%
- Wild	0.37%	0.37%	0.37%	0.97%	0.97%	0.65%
Number survived to adults	12,383	31,666	33,111	72,798	104,499	254,458
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	310	792	828	6,552	9,405	17,886
b) Sport	--	--	--	73	104	177
British Columbia						
a) Commercial	619	1,583	1,656	8,008	11,495	23,361
b) Sport	62	158	166	728	1,045	2,159
Washington ocean						
a) Commercial	124	317	331	2,912	4,180	7,863
b) Sport	124	317	331	728	1,045	2,545
Washington Puget Sound						
a) Commercial	62	158	166	7	10	404
b) Sport	--	--	--	22	31	53
Oregon						
a) Commercial	62	158	166	728	1,045	2,159
b) Sport	62	158	166	728	1,045	2,159
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport	--	--	--	7,280	10,450	17,730
Mainstem	--	--	--	--	--	--
Tributary	--	--	--	7,280	10,450	17,730
b) Gillnet	--	--	--	--	--	--
c) Tribal C & S	405	1,034	1,082	--	--	2,521
Other	371	950	993	--	--	2,315
Hatchery						
Hatchery requirement	2,869	7,336	7,671	6,433	9,234	33,542
Hatchery surplus market	3,657	9,352	9,779	15,660	22,479	60,928
Hatchery surplus carcass	3,657	9,352	9,779	15,660	22,479	60,928

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Spring/Summer Chinook
 Alternative: 80's Actual

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	2,342,791	5,990,957	6,264,260	5,253,481	7,541,137	27,392,626
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	1,004,053	2,567,553	2,684,683	2,251,492	3,231,916	11,739,697
Total smolt production	3,346,844	8,558,510	8,948,943	7,504,973	10,773,053	39,132,323
Representative survival rate in % - Hatchery	0.39%	0.39%	0.39%	1.01%	1.02%	0.69%
- Wild	0.39%	0.39%	0.39%	1.01%	1.02%	0.69%
Number survived to adults	13,138	33,597	35,130	76,109	110,131	268,106
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	328	840	878	6,850	9,912	18,808
b) Sport	--	--	--	76	110	186
British Columbia						
a) Commercial	657	1,680	1,756	8,372	12,114	24,580
b) Sport	66	168	176	761	1,101	2,272
Washington ocean						
a) Commercial	131	336	351	3,044	4,405	8,268
b) Sport	131	336	351	761	1,101	2,681
Washington Puget Sound						
a) Commercial	66	168	176	8	11	428
b) Sport	--	--	--	23	33	56
Oregon						
a) Commercial	66	168	176	761	1,101	2,272
b) Sport	66	168	176	761	1,101	2,272
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport						
Mainstem	--	--	--	7,611	11,013	18,624
Tributary	--	--	--	--	--	--
b) Gillnet	--	--	--	7,611	11,013	18,624
c) Tribal C & S	438	1,120	1,171	--	--	2,729
Other	394	1,008	1,054	--	--	2,456
Hatchery						
Hatchery requirement	2,869	7,336	7,671	6,433	9,234	33,542
Hatchery surplus market	3,963	10,135	10,597	16,519	23,940	65,154
Hatchery surplus carcass	3,963	10,135	10,597	16,519	23,940	65,154

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Spring/Summer Chinook
Alternative: Run Doubling Objective**

Number of smolts released and fish harvested in area

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	
Number of annual hatchery smolt releases	2,342,791	5,990,957	6,264,260	5,253,481	7,541,137	27,392,626
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	1,004,053	2,567,553	2,684,683	2,251,492	3,231,916	11,739,697
Total smolt production	3,346,844	8,558,510	8,948,943	7,504,973	10,773,053	39,132,323
Representative survival rate in % - Hatchery	0.79%	0.79%	0.79%	2.03%	2.04%	1.37%
- Wild	0.79%	0.79%	0.79%	2.03%	2.04%	1.37%
Number survived to adults	26,277	67,195	70,260	152,218	220,263	536,212
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	657	1,680	1,756	13,700	19,824	37,617
b) Sport	--	--	--	152	220	372
British Columbia						
a) Commercial	1,314	3,360	3,513	16,744	24,229	49,159
b) Sport	131	336	351	1,522	2,203	4,543
Washington ocean						
a) Commercial	263	672	703	6,089	8,811	16,537
b) Sport	263	672	703	1,522	2,203	5,362
Washington Puget Sound						
a) Commercial	131	336	351	15	22	856
b) Sport	--	--	--	46	66	112
Oregon						
a) Commercial	131	336	351	1,522	2,203	4,543
b) Sport	131	336	351	1,522	2,203	4,543
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport						
Mainstem	6,046	15,461	16,166	15,222	22,026	74,921
Tributary	2,015	5,154	5,389	--	--	12,557
b) Gillnet	1,344	3,436	3,592	15,222	22,026	45,620
c) Tribal C & S	10,193	26,066	27,255	--	--	63,514
Other	788	2,016	2,108	--	--	4,912
Hatchery						
Hatchery requirement	2,869	7,336	7,671	6,433	9,234	33,542
Hatchery surplus market	0	-0	-0	36,254	52,497	88,751
Hatchery surplus carcass	0	-0	-0	36,254	52,497	88,751

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Spring/Summer Chinook Alternative: Early 90's

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	2,202,224	5,631,500	5,888,404	4,938,272	7,088,669	25,749,069
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	943,810	2,413,500	2,523,602	2,116,402	3,038,001	11,035,315
Total smolt production	3,146,034	8,045,000	8,412,006	7,054,674	10,126,670	36,784,384
Representative survival rate in % - Hatchery	0.10%	0.10%	0.10%	0.35%	0.35%	0.22%
- Wild	0.10%	0.10%	0.10%	0.35%	0.35%	0.22%
Number survived to adults	3,146	8,045	8,412	24,691	35,443	79,738
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	79	201	210	2,222	3,190	5,902
b) Sport	--	--	--	25	35	60
British Columbia						
a) Commercial	157	402	421	2,716	3,899	7,595
b) Sport	16	40	42	247	354	699
Washington ocean						
a) Commercial	31	80	84	988	1,418	2,601
b) Sport	31	80	84	247	354	797
Washington Puget Sound						
a) Commercial	16	40	42	2	4	104
b) Sport	--	--	--	7	11	18
Oregon						
a) Commercial	16	40	42	247	354	699
b) Sport	16	40	42	247	354	699
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport	--	--	--	2,469	3,544	6,013
Mainstem	--	--	--	--	--	--
Tributary	--	--	--	2,469	3,544	6,013
b) Gillnet	--	--	--	--	--	--
c) Tribal C & S	1	2	2	--	--	5
Other	87	222	232	--	--	541
Hatchery						
Hatchery requirement	2,697	6,896	7,210	6,047	8,680	31,529
Hatchery surplus market	--	--	--	3,379	4,850	8,229
Hatchery surplus carcass	--	--	--	3,379	4,850	8,229

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Fall Chinook
Alternative: NMFS Cap (1970's-1990's Actual)

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	612,797	12,329,885	24,002,299	76,857,203	0	113,802,184
Wild fish contribution - % Assumption	50%	50%	50%	50%	50%	50%
- No. of releases	612,797	12,329,885	24,002,299	76,857,203	0	113,802,184
Total smolt production	1,225,594	24,659,770	48,004,598	153,714,406	0	227,604,368
Representative survival rate in % - Hatchery	0.60%	0.60%	0.60%	0.32%	NA	0.41%
- Wild	0.60%	0.60%	0.60%	0.32%	NA	0.41%
Number survived to adults	7,354	147,959	288,028	491,886	NA	935,226
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	441	8,878	17,282	7,378	NA	33,979
b) Sport	1	15	29	--	NA	44
British Columbia						
a) Commercial	1,838	36,990	72,007	98,377	NA	209,212
b) Sport	147	2,959	5,761	14,757	NA	23,623
Washington ocean						
a) Commercial	331	6,658	12,961	59,026	NA	78,977
b) Sport	147	2,959	5,761	49,189	NA	58,055
Washington Puget Sound						
a) Commercial	0	1	1	--	NA	2
b) Sport	0	1	1	--	NA	2
Oregon						
a) Commercial	110	2,219	4,320	14,757	NA	21,407
b) Sport	37	740	1,440	4,919	NA	7,136
California						
a) Commercial	0	1	1	2,459	NA	2,462
b) Sport	0	1	1	492	NA	494
Columbia Basin inland						
a) Freshwater sport						
Mainstem	74	1,480	2,880	24,594	NA	29,028
Tributary	--	--	--	--	NA	--
b) Gillnet	882	17,755	34,563	54,107	NA	107,308
c) Tribal C & S	1,938	38,990	75,901	--	NA	116,830
Other	11	215	418	--	NA	643
Hatchery						
Hatchery requirement	1,051	21,137	41,147	131,755	NA	195,089
Hatchery surplus market	173	3,481	6,776	15,038	NA	25,468
Hatchery surplus carcass	173	3,481	6,776	15,038	NA	25,468

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Fall Chinook
Alternative: 80's Actual**

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	612,797	12,329,885	24,002,299	76,857,203	0	113,802,184
Wild fish contribution - % Assumption	50%	50%	50%	50%	50%	50%
- No. of releases	612,797	12,329,885	24,002,299	76,857,203	0	113,802,184
Total smolt production	1,225,594	24,659,770	48,004,598	153,714,406	0	227,604,368
Representative survival rate in % - Hatchery	0.73%	0.73%	0.73%	0.38%	NA	0.49%
- Wild	0.73%	0.73%	0.73%	0.38%	NA	0.49%
Number survived to adults	8,890	178,882	348,224	589,080	NA	1,125,076
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	533	10,733	20,893	8,836	NA	40,996
b) Sport	1	18	35	--	NA	54
British Columbia						
a) Commercial	2,222	44,721	87,056	117,816	NA	251,815
b) Sport	178	3,578	6,964	17,672	NA	28,392
Washington ocean						
a) Commercial	419	8,427	16,404	77,103	NA	102,353
b) Sport	186	3,745	7,291	64,252	NA	75,474
Washington Puget Sound						
a) Commercial	0	1	2	--	NA	3
b) Sport	0	1	2	--	NA	3
Oregon						
a) Commercial	140	2,809	5,468	19,276	NA	27,692
b) Sport	47	936	1,823	6,425	NA	9,231
California						
a) Commercial	0	1	2	3,213	NA	3,215
b) Sport	0	1	2	643	NA	645
Columbia Basin inland						
a) Freshwater sport						
Mainstem	93	1,873	3,645	32,126	NA	37,737
Tributary	--	--	--	--	NA	--
b) Gillnet	1,117	22,472	43,745	70,677	NA	138,011
c) Tribal C & S	2,452	49,348	96,064	--	NA	147,865
Other	13	272	529	--	NA	814
Hatchery						
Hatchery requirement	1,051	21,137	41,147	131,755	NA	195,089
Hatchery surplus market	219	4,406	8,576	19,643	NA	32,843
Hatchery surplus carcass	219	4,406	8,576	19,643	NA	32,843

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Fall Chinook
Alternative: Run Doubling Objective

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	612,797	12,329,885	24,002,299	76,857,203	0	113,802,184
Wild fish contribution - % Assumption	50%	50%	50%	50%	50%	50%
- No. of releases	612,797	12,329,885	24,002,299	76,857,203	0	113,802,184
Total smolt production	1,225,594	24,659,770	48,004,598	153,714,406	0	227,604,368
Representative survival rate in % - Hatchery	1.45%	1.45%	1.45%	0.77%	NA	0.99%
- Wild	1.45%	1.45%	1.45%	0.77%	NA	0.99%
Number survived to adults	17,780	357,764	696,449	1,178,159	NA	2,250,152
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	1,067	21,466	41,787	17,672	NA	81,992
b) Sport	2	36	70	--	NA	107
British Columbia						
a) Commercial	4,445	89,441	174,112	235,632	NA	503,630
b) Sport	356	7,155	13,929	35,345	NA	56,785
Washington ocean						
a) Commercial	927	18,658	36,322	186,661	NA	242,569
b) Sport	412	8,293	16,143	155,551	NA	180,399
Washington Puget Sound						
a) Commercial	0	2	4	--	NA	6
b) Sport	0	2	4	--	NA	6
Oregon						
a) Commercial	309	6,219	12,107	46,665	NA	65,301
b) Sport	103	2,073	4,036	15,555	NA	21,767
California						
a) Commercial	0	2	4	7,778	NA	7,784
b) Sport	0	2	4	1,556	NA	1,562
Columbia Basin inland						
a) Freshwater sport						
Mainstem	206	4,146	8,072	77,775	NA	90,199
Tributary	--	--	--	--	NA	--
b) Gillnet	2,473	49,756	96,858	171,106	NA	320,193
c) Tribal C & S	5,430	109,265	212,702	--	NA	327,397
Other	30	601	1,170	--	NA	1,801
Hatchery						
Hatchery requirement	1,051	21,137	41,147	131,755	NA	195,089
Hatchery surplus market	485	9,755	18,989	47,554	NA	76,782
Hatchery surplus carcass	485	9,755	18,989	47,554	NA	76,782

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Fall Chinook
Alternative: Early 90's**

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	533,134	10,727,000	20,882,000	67,966,887	0	100,109,021
Wild fish contribution - % Assumption	50%	50%	50%	50%	50%	50%
- No. of releases	533,134	10,727,000	20,882,000	67,966,887	0	100,109,021
Total smolt production	1,066,268	21,454,000	41,764,000	135,933,774	0	200,218,042
Representative survival rate in % - Hatchery	0.40%	0.40%	0.40%	0.25%	NA	0.30%
- Wild	0.40%	0.40%	0.40%	0.25%	NA	0.30%
Number survived to adults	4,265	85,816	167,056	339,834	NA	596,972
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	256	5,149	10,023	5,098	NA	20,526
b) Sport	0	9	17	--	NA	26
British Columbia						
a) Commercial	1,066	21,454	41,764	67,967	NA	132,251
b) Sport	85	1,716	3,341	10,195	NA	15,338
Washington ocean						
a) Commercial	166	3,338	6,499	34,502	NA	44,505
b) Sport	74	1,484	2,888	28,751	NA	33,197
Washington Puget Sound						
a) Commercial	0	0	1	--	NA	1
b) Sport	0	0	1	--	NA	1
Oregon						
a) Commercial	55	1,113	2,166	8,625	NA	11,960
b) Sport	18	371	722	2,875	NA	3,987
California						
a) Commercial	0	0	1	1,438	NA	1,439
b) Sport	0	0	1	288	NA	289
Columbia Basin inland						
a) Freshwater sport						
Mainstem	37	742	1,444	14,376	NA	16,599
Tributary	--	--	--	--	NA	--
b) Gillnet	442	8,902	17,330	31,627	NA	58,301
c) Tribal C & S	972	19,549	38,057	--	NA	58,578
Other	5	108	209	--	NA	322
Hatchery						
Hatchery requirement	914	18,389	35,798	116,515	NA	171,615
Hatchery surplus market	87	1,745	3,397	8,790	NA	14,019
Hatchery surplus carcass	87	1,745	3,397	8,790	NA	14,019

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Summer/Winter Steelhead
Alternative: NMFS Cap (1970's-1990's Actual)**

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	12,900,795	1,363,636	536,886	3,775,119	1,465,625	20,042,061
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	5,528,912	584,415	230,094	1,617,908	628,125	8,589,455
Total smolt production	18,429,707	1,948,051	766,980	5,393,027	2,093,750	28,631,516
Representative survival rate in % - Hatchery	0.70%	0.70%	0.70%	0.40%	0.40%	0.62%
- Wild	0.70%	0.70%	0.70%	0.40%	0.40%	0.62%
Number survived to adults	129,008	13,636	5,369	21,572	8,375	177,960
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	--	--	--	--	--	--
b) Sport	39	4	2	6	3	53
British Columbia						
a) Commercial	1,290	136	54	216	84	1,780
b) Sport	--	--	--	--	--	--
Washington ocean						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Washington Puget Sound						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Oregon						
a) Commercial	--	--	--	--	--	--
b) Sport	39	4	2	6	3	53
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport	7,914	837	329	9,707	3,769	22,556
Mainstem	23,743	2,510	988	--	--	27,241
Tributary	--	--	--	--	--	--
b) Gillnet	--	2,231	878	--	--	24,214
c) Tribal C & S	21,105	--	--	--	--	--
Other	--	--	--	--	--	--
Hatchery						
Hatchery requirement	22,116	2,338	920	6,472	2,513	34,358
Hatchery surplus market	26,381	2,789	1,098	2,582	1,002	33,852
Hatchery surplus carcass	26,381	2,789	1,098	2,582	1,002	33,852

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

Species: Summer/Winter Steelhead
Alternative: 80's Actual

	Snake River	Upper Columbia	Middle Columbia	Lower Columbia	Willamette	Number of smolts released and fish harvested in area
Number of annual hatchery smolt releases	12,900,795	1,363,636	536,886	3,775,119	1,465,625	20,042,061
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	5,528,912	584,415	230,094	1,617,908	628,125	8,589,455
Total smolt production	18,429,707	1,948,051	766,980	5,393,027	2,093,750	28,631,516
Representative survival rate in % - Hatchery	1.56%	1.56%	1.56%	0.89%	0.89%	1.38%
- Wild	1.56%	1.56%	1.56%	0.89%	0.89%	1.38%
Number survived to adults	286,599	30,294	11,927	47,924	18,606	395,349
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	--	--	--	--	--	--
b) Sport	86	9	4	14	6	119
British Columbia						
a) Commercial	2,866	303	119	479	186	3,953
b) Sport	--	--	--	--	--	--
Washington ocean						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Washington Puget Sound						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Oregon						
a) Commercial	--	--	--	--	--	--
b) Sport	86	9	4	14	6	119
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport	19,608	2,073	816	21,566	8,373	52,435
Mainstem	58,825	6,218	2,448	--	--	67,491
Tributary	--	--	--	--	--	--
b) Gillnet	52,289	5,527	2,176	--	--	59,992
c) Tribal C & S	--	--	--	--	--	--
Other	--	--	--	--	--	--
Hatchery						
Hatchery requirement	22,116	2,338	920	6,472	2,513	34,358
Hatchery surplus market	65,361	6,909	2,720	9,689	3,762	88,441
Hatchery surplus carcass	65,361	6,909	2,720	9,689	3,762	88,441

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Summer/Winter Steelhead
Alternative: Run Doubling Objective**

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	12,900,795	1,363,636	536,886	3,775,119	1,465,625	20,042,061
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	5,528,912	584,415	230,094	1,617,908	628,125	8,589,455
Total smolt production	18,429,707	1,948,051	766,980	5,393,027	2,093,750	28,631,516
Representative survival rate in % - Hatchery	3.11%	3.11%	3.11%	1.78%	1.78%	2.76%
- Wild	3.11%	3.11%	3.11%	1.78%	1.78%	2.76%
Number survived to adults	573,197	60,588	23,854	95,848	37,211	790,698
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	--	--	--	--	--	--
b) Sport	172	18	7	29	11	237
British Columbia						
a) Commercial	5,732	606	239	958	372	7,907
b) Sport	--	--	--	--	--	--
Washington ocean						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Washington Puget Sound						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Oregon						
a) Commercial	--	--	--	--	--	--
b) Sport	172	18	7	29	11	237
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport						
Mainstem	34,063	3,601	1,418	43,132	16,745	98,958
Tributary	102,189	10,802	4,253	--	--	117,243
b) Gillnet	--	--	--	--	--	--
c) Tribal C & S	136,251	14,402	5,670	--	--	156,323
Other	--	--	--	--	--	--
Hatchery						
Hatchery requirement	22,116	2,338	920	6,472	2,513	34,358
Hatchery surplus market	136,251	14,402	5,670	22,614	8,780	187,718
Hatchery surplus carcass	136,251	14,402	5,670	22,614	8,780	187,718

Estimated Columbia River Basin Salmon/Steelhead Production (Hatchery and Wild) of Smolt Releases, Smolt Production, Survival Rates, Adults and Resulting Economic Impacts and Estimated Economic Value by Geographic Region

**Species: Summer/Winter Steelhead
Alternative: Early 90's**

	<u>Snake River</u>	<u>Upper Columbia</u>	<u>Middle Columbia</u>	<u>Lower Columbia</u>	<u>Willamette</u>	<u>Number of smolts released and fish harvested in area</u>
Number of annual hatchery smolt releases	11,352,700	1,200,000	472,460	3,322,105	1,259,750	17,607,015
Wild fish contribution - % Assumption	30%	30%	30%	30%	30%	30%
- No. of releases	4,865,443	514,286	202,483	1,423,759	539,893	7,545,864
Total smolt production	16,218,143	1,714,286	674,943	4,745,864	1,799,643	25,152,879
Representative survival rate in % - Hatchery	0.50%	0.50%	0.50%	0.20%	0.20%	0.42%
- Wild	0.50%	0.50%	0.50%	0.20%	0.20%	0.42%
Number survived to adults	81,091	8,571	3,375	9,492	3,599	106,128
<u>West Coast Harvest</u>						
Alaska						
a) Commercial	--	--	--	--	--	--
b) Sport	24	3	1	3	1	32
British Columbia						
a) Commercial	811	86	34	95	36	1,061
b) Sport	--	--	--	--	--	--
Washington ocean						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Washington Puget Sound						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Oregon						
a) Commercial	--	3	1	3	1	32
b) Sport	24	--	--	--	--	--
California						
a) Commercial	--	--	--	--	--	--
b) Sport	--	--	--	--	--	--
Columbia Basin inland						
a) Freshwater sport						
Mainstem	4,558	482	190	3,322	1,260	9,811
Tributary	13,673	1,445	569	--	--	15,687
b) Gillnet	--	--	--	--	--	--
c) Tribal C & S	12,154	1,285	506	--	--	13,944
Other	--	--	--	--	--	--
Hatchery						
Hatchery requirement	19,462	2,057	810	5,695	2,160	30,183
Hatchery surplus market	15,192	1,606	632	187	71	17,688
Hatchery surplus carcass	15,192	1,606	632	187	71	17,688

APPENDIX 4.E

Economic Value Forecasts

Species: Coho
Alternative: NMFS Cap (1970's-1990's Actual)

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA		NA	
Upper Columbia								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	3,867	1,854	1,278	1,096	5,145	2%	2,949	2%
Washington ocean	665	319	63,919	54,789	64,584	29%	55,108	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	9,284	4,884	41,547	35,613	50,831	23%	40,497	25%
California	3,300	1,494	6,392	5,479	9,692	4%	6,973	4%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	3,196	2,739	3,196	1%	2,739	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	8,070	4,789	0	0	8,070	4%	4,789	3%
Tribal	70,852	42,044	0	0	70,852	32%	42,044	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	8,586	5,235	0	0	8,586	4%	5,235	3%
Hatchery carcass	3,569	2,195	0	0	3,569	2%	2,195	1%
Total with hatchery surplus utilization					224,525	100%	162,529	100%
Total without hatchery surplus utilization					212,371		155,100	
Middle Columbia								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	11,292	5,413	3,733	3,200	15,025	2%	8,612	2%
Washington ocean	1,943	932	186,643	159,984	188,586	29%	160,916	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	27,110	14,263	121,318	103,990	148,428	23%	118,252	25%
California	9,635	4,363	18,664	15,998	28,300	4%	20,361	4%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	9,332	7,999	9,332	1%	7,999	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	23,564	13,983	0	0	23,564	4%	13,983	3%
Tribal	206,889	122,768	0	0	206,889	32%	122,768	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	25,071	15,286	0	0	25,071	4%	15,286	3%
Hatchery carcass	10,421	6,409	0	0	10,421	2%	6,409	1%
Total with hatchery surplus utilization					655,615	100%	474,586	100%
Total without hatchery surplus utilization					620,123		452,891	

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
<u>Lower Columbia</u>								
Alaska	172	83	0	0	172	0%	83	0%
British Columbia	660,764	316,730	242,705	208,038	903,469	4%	524,768	3%
Washington ocean	202,597	97,162	7,281,145	6,241,155	7,483,743	32%	6,338,317	36%
Washington Puget Sound	6,836	3,507	24,270	20,804	31,107	0%	24,311	0%
Oregon	1,692,138	890,241	5,824,916	4,992,924	7,517,054	33%	5,883,165	33%
California	167,062	75,643	242,705	208,038	409,767	2%	283,682	2%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,427,048	2,080,385	2,427,048	11%	2,080,385	12%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	3,356,959	1,992,017	0	0	3,356,959	15%	1,992,017	11%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	734,375	447,760	0	0	734,375	3%	447,760	3%
Hatchery carcass	200,676	123,416	0	0	200,676	1%	123,416	1%
Total with hatchery surplus utilization					23,064,370	100%	17,697,904	100%
Total without hatchery surplus utilization					22,129,318		17,126,728	
<u>Willamette</u>								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	5,856	2,807	1,936	1,659	7,792	2%	4,466	1%
Washington ocean	2,015	966	193,583	165,933	195,598	43%	166,899	47%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	28,118	14,793	125,829	107,856	153,947	34%	122,649	34%
California	9,994	4,525	19,358	16,593	29,352	6%	21,118	6%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	9,679	8,297	9,679	2%	8,297	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	24,440	14,503	0	0	24,440	5%	14,503	4%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	26,003	15,854	0	0	26,003	6%	15,854	4%
Hatchery carcass	7,582	4,663	0	0	7,582	2%	4,663	1%
Total with hatchery surplus utilization					454,392	100%	358,449	100%
Total without hatchery surplus utilization					420,807		337,932	
<u>Total</u>								
Alaska	172	83	0	0	172	0%	83	0%
British Columbia	681,779	326,803	249,652	213,993	931,431	4%	540,796	3%
Washington ocean	207,220	99,379	7,725,290	6,621,861	7,932,510	33%	6,721,240	36%
Washington Puget Sound	6,836	3,507	24,270	20,804	31,107	0%	24,311	0%
Oregon	1,756,650	924,181	6,113,610	5,240,383	7,870,260	32%	6,164,564	33%
California	189,991	86,025	287,119	246,109	477,110	2%	332,134	2%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,449,256	2,099,420	2,449,256	10%	2,099,420	11%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	3,413,032	2,025,291	0	0	3,413,032	14%	2,025,291	11%
Tribal	277,742	164,812	0	0	277,742	1%	164,812	1%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	794,035	484,135	0	0	794,035	3%	484,135	3%
Hatchery carcass	222,248	136,683	0	0	222,248	1%	136,683	1%
Total with hatchery surplus utilization					24,398,902	100%	18,693,469	100%
Total without hatchery surplus utilization					23,382,619		18,072,651	

Species: Coho
Alternative: 80's Actual

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA	NA	NA	NA
Upper Columbia								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	4,809	2,305	1,590	1,363	6,399	2%	3,668	2%
Washington ocean	846	406	81,268	69,660	82,114	29%	70,066	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	11,804	6,210	52,824	45,279	64,628	23%	51,489	25%
California	4,195	1,900	8,127	6,966	12,322	4%	8,866	4%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	4,063	3,483	4,063	1%	3,483	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	10,260	6,088	0	0	10,260	4%	6,088	3%
Tribal	90,084	53,456	0	0	90,084	32%	53,456	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	10,916	6,656	0	0	10,916	4%	6,656	3%
Hatchery carcass	3,959	2,435	0	0	3,959	1%	2,435	1%
Total with hatchery surplus utilization					284,747	100%	206,207	100%
Total without hatchery surplus utilization					269,871		197,116	
Middle Columbia								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	14,043	6,731	4,642	3,979	18,686	2%	10,711	2%
Washington ocean	2,470	1,185	237,300	203,405	239,770	29%	204,590	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	34,468	18,134	154,245	132,213	188,713	23%	150,347	25%
California	12,251	5,547	23,730	20,341	35,981	4%	25,887	4%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	11,865	10,170	11,865	1%	10,170	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	29,959	17,778	0	0	29,959	4%	17,778	3%
Tribal	263,041	156,088	0	0	263,041	32%	156,088	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	31,875	19,435	0	0	31,875	4%	19,435	3%
Hatchery carcass	11,561	7,110	0	0	11,561	1%	7,110	1%
Total with hatchery surplus utilization					831,449	100%	602,116	100%
Total without hatchery surplus utilization					788,013		575,571	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	200	96	0	0	200	0%	96	0%
British Columbia	766,244	367,291	281,449	241,249	1,047,693	4%	608,539	3%
Washington ocean	236,660	113,498	8,505,319	7,290,476	8,741,979	32%	7,403,974	36%
Washington Puget Sound	7,986	4,097	28,351	24,302	36,337	0%	28,398	0%
Oregon	1,976,636	1,039,917	6,804,255	5,832,381	8,780,891	33%	6,872,298	33%
California	195,150	88,361	283,511	243,016	478,660	2%	331,377	2%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,835,106	2,430,159	2,835,106	11%	2,430,159	12%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	3,921,362	2,326,933	0	0	3,921,362	15%	2,326,933	11%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	857,845	523,041	0	0	857,845	3%	523,041	3%
Hatchery carcass	221,358	136,135	0	0	221,358	1%	136,135	1%
Total with hatchery surplus utilization					26,921,432	100%	20,660,951	100%
Total without hatchery surplus utilization					25,842,229		20,001,774	
<u>Willamette</u>								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	7,283	3,491	2,407	2,064	9,690	2%	5,554	1%
Washington ocean	2,562	1,229	246,122	210,967	248,683	43%	212,196	47%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	35,749	18,808	159,979	137,129	195,728	34%	155,937	34%
California	12,706	5,753	24,612	21,097	37,318	6%	26,850	6%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	12,306	10,548	12,306	2%	10,548	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	31,073	18,439	0	0	31,073	5%	18,439	4%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	33,060	20,157	0	0	33,060	6%	20,157	4%
Hatchery carcass	8,764	5,390	0	0	8,764	2%	5,390	1%
Total with hatchery surplus utilization					576,624	100%	455,071	100%
Total without hatchery surplus utilization					534,799		429,524	
<u>Total</u>								
Alaska	200	96	0	0	200	0%	96	0%
British Columbia	792,380	379,818	290,089	248,654	1,082,468	4%	628,473	3%
Washington ocean	242,538	116,317	9,070,009	7,774,509	9,312,546	33%	7,890,826	36%
Washington Puget Sound	7,986	4,097	28,351	24,302	36,337	0%	28,398	0%
Oregon	2,058,657	1,083,069	7,171,303	6,147,002	9,229,961	32%	7,230,071	33%
California	224,302	101,560	339,980	291,419	564,282	2%	392,980	2%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,863,341	2,454,360	2,863,341	10%	2,454,360	11%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	3,992,654	2,369,238	0	0	3,992,654	14%	2,369,238	11%
Tribal	353,124	209,544	0	0	353,124	1%	209,544	1%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	933,697	569,289	0	0	933,697	3%	569,289	3%
Hatchery carcass	245,642	151,070	0	0	245,642	1%	151,070	1%
Total with hatchery surplus utilization					28,614,251	100%	21,924,345	100%
Total without hatchery surplus utilization					27,434,912		21,203,986	

Species: Coho
Alternative: Run Doubling Objective

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Snake River</u>								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA		NA	
<u>Upper Columbia</u>								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	9,619	4,611	3,180	2,726	12,799	2%	7,336	2%
Washington ocean	1,768	848	169,816	145,561	171,584	29%	146,408	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	24,666	12,977	110,381	94,615	135,046	23%	107,591	25%
California	8,767	3,969	16,982	14,556	25,748	4%	18,526	4%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	8,491	7,278	8,491	1%	7,278	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	21,439	12,722	0	0	21,439	4%	12,722	3%
Tribal	188,237	111,700	0	0	188,237	32%	111,700	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	22,811	13,908	0	0	22,811	4%	13,908	3%
Hatchery carcass	5,951	3,660	0	0	5,951	1%	3,660	1%
Total with hatchery surplus utilization					592,106	100%	429,130	100%
Total without hatchery surplus utilization					563,344		411,561	
<u>Middle Columbia</u>								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	28,087	13,463	9,285	7,959	37,371	2%	21,422	2%
Washington ocean	5,161	2,475	495,857	425,032	501,018	29%	427,507	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	72,023	37,892	322,307	276,271	394,330	23%	314,163	25%
California	25,599	11,591	49,586	42,503	75,184	4%	54,094	4%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	24,793	21,252	24,793	1%	21,252	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	62,602	37,148	0	0	62,602	4%	37,148	3%
Tribal	549,645	326,159	0	0	549,645	32%	326,159	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	66,606	40,611	0	0	66,606	4%	40,611	3%
Hatchery carcass	17,378	10,688	0	0	17,378	1%	10,688	1%
Total with hatchery surplus utilization					1,728,928	100%	1,253,042	100%
Total without hatchery surplus utilization					1,644,944		1,201,744	

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
<u>Lower Columbia</u>								
Alaska	399	191	0	0	399	0%	191	0%
British Columbia	1,532,489	734,581	562,898	482,497	2,095,387	4%	1,217,079	3%
Washington ocean	484,101	232,167	17,398,109	14,913,079	17,882,211	33%	15,145,246	36%
Washington Puget Sound	16,335	8,380	57,994	49,710	74,329	0%	58,090	0%
Oregon	4,043,321	2,127,209	13,918,487	11,930,463	17,961,808	33%	14,057,672	33%
California	399,190	180,747	579,937	497,103	979,127	2%	677,850	2%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	5,799,370	4,971,026	5,799,370	11%	4,971,026	12%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	8,021,366	4,759,873	0	0	8,021,366	15%	4,759,873	11%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,754,770	1,069,910	0	0	1,754,770	3%	1,069,910	3%
Hatchery carcass	371,597	228,532	0	0	371,597	1%	228,532	1%
Total with hatchery surplus utilization					54,940,364	100%	42,185,471	100%
Total without hatchery surplus utilization					52,813,996		40,887,029	
<u>Willamette</u>								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	14,565	6,982	4,815	4,127	19,380	2%	11,109	1%
Washington ocean	5,353	2,567	514,292	440,834	519,645	43%	443,401	47%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	74,701	39,300	334,290	286,542	408,990	34%	325,842	34%
California	26,550	12,022	51,429	44,083	77,979	6%	56,105	6%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	25,715	22,042	25,715	2%	22,042	2%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	64,929	38,529	0	0	64,929	5%	38,529	4%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	69,082	42,120	0	0	69,082	6%	42,120	4%
Hatchery carcass	14,798	9,101	0	0	14,798	1%	9,101	1%
Total with hatchery surplus utilization					1,200,519	100%	948,249	100%
Total without hatchery surplus utilization					1,116,639		897,028	
<u>Total</u>								
Alaska	399	191	0	0	399	0%	191	0%
British Columbia	1,584,760	759,637	580,177	497,309	2,164,937	4%	1,256,945	3%
Washington ocean	496,383	238,057	18,578,074	15,924,506	19,074,457	33%	16,162,563	36%
Washington Puget Sound	16,335	8,380	57,994	49,710	74,329	0%	58,090	0%
Oregon	4,214,710	2,217,378	14,685,465	12,587,891	18,900,175	32%	14,805,269	33%
California	460,106	208,329	697,933	598,245	1,158,039	2%	806,574	2%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	5,858,368	5,021,598	5,858,368	10%	5,021,598	11%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	8,170,337	4,848,273	0	0	8,170,337	14%	4,848,273	11%
Tribal	737,882	437,859	0	0	737,882	1%	437,859	1%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,913,269	1,166,549	0	0	1,913,269	3%	1,166,549	3%
Hatchery carcass	409,725	251,981	0	0	409,725	1%	251,981	1%
Total with hatchery surplus utilization					58,461,917	100%	44,815,892	100%
Total without hatchery surplus utilization					56,138,923		43,397,362	

Species: Coho
Alternative: Early 90's

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
Snake River								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA	NA	NA	NA
Upper Columbia								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	401	192	133	114	534	8%	306	6%
Washington ocean	14	7	1,344	1,152	1,358	20%	1,159	25%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	195	103	874	749	1,069	16%	852	18%
California	69	31	134	115	204	3%	147	3%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	67	58	67	1%	58	1%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	170	101	0	0	170	2%	101	2%
Tribal	1,490	884	0	0	1,490	22%	884	19%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	181	110	0	0	181	3%	110	2%
Hatchery carcass	1,799	1,106	0	0	1,799	26%	1,106	23%
Total with hatchery surplus utilization					6,872	100%	4,723	100%
Total without hatchery surplus utilization					4,893		3,506	
Middle Columbia								
Alaska	0	0	0	0	0	0%	0	0%
British Columbia	1,172	562	387	332	1,559	8%	894	6%
Washington ocean	41	20	3,926	3,365	3,967	20%	3,385	25%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	570	300	2,552	2,187	3,122	16%	2,487	18%
California	203	92	393	337	595	3%	428	3%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	196	168	196	1%	168	1%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	496	294	0	0	496	2%	294	2%
Tribal	4,352	2,582	0	0	4,352	22%	2,582	19%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	527	322	0	0	527	3%	322	2%
Hatchery carcass	5,252	3,230	0	0	5,252	26%	3,230	23%
Total with hatchery surplus utilization					20,066	100%	13,790	100%
Total without hatchery surplus utilization					14,286		10,238	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	Total economic <u>value</u>	Total economic <u>value</u>	%	%
<u>Lower Columbia</u>									
Alaska	57	27	0	0	57	0%	27	0%	
British Columbia	219,761	105,340	80,720	69,191	300,481	4%	174,530	3%	
Washington ocean	62,002	29,735	2,228,303	1,910,027	2,290,305	32%	1,939,762	36%	
Washington Puget Sound	2,092	1,073	7,428	6,367	9,520	0%	7,440	0%	
Oregon	517,858	272,447	1,782,642	1,528,021	2,300,500	32%	1,800,468	33%	
California	51,127	23,150	74,277	63,668	125,404	2%	86,817	2%	
Columbia Basin inland									
Freshwater sport									
Mainstem	0	0	742,768	636,676	742,768	10%	636,676	12%	
Tributary	0	0	0	0	0	0%	0	0%	
Gillnet	1,027,355	609,632	0	0	1,027,355	14%	609,632	11%	
Tribal	0	0	0	0	0	0%	0	0%	
Other	0	0	0	0	0	0%	0	0%	
Hatchery									
Hatchery surplus market	224,746	137,031	0	0	224,746	3%	137,031	3%	
Hatchery carcass	102,222	62,867	0	0	102,222	1%	62,867	1%	
Total with hatchery surplus utilization					7,123,357	100%	5,455,250	100%	
Total without hatchery surplus utilization					6,796,388		5,255,353		
<u>Willamette</u>									
Alaska	0	0	0	0	0	0%	0	0%	
British Columbia	1,620	777	536	459	2,156	2%	1,236	2%	
Washington ocean	430	206	41,358	35,451	41,788	42%	35,657	46%	
Washington Puget Sound	0	0	0	0	0	0%	0	0%	
Oregon	6,007	3,160	26,883	23,043	32,890	33%	26,203	34%	
California	2,135	967	4,136	3,545	6,271	6%	4,512	6%	
Columbia Basin inland									
Freshwater sport									
Mainstem	0	0	2,068	1,773	2,068	2%	1,773	2%	
Tributary	0	0	0	0	0	0%	0	0%	
Gillnet	5,221	3,098	0	0	5,221	5%	3,098	4%	
Tribal	0	0	0	0	0	0%	0	0%	
Other	0	0	0	0	0	0%	0	0%	
Hatchery									
Hatchery surplus market	5,555	3,387	0	0	5,555	6%	3,387	4%	
Hatchery carcass	3,608	2,219	0	0	3,608	4%	2,219	3%	
Total with hatchery surplus utilization					99,558	100%	78,085	100%	
Total without hatchery surplus utilization					90,394		72,479		
<u>Total</u>									
Alaska	57	27	0	0	57	0%	27	0%	
British Columbia	222,953	106,870	81,776	70,095	304,729	4%	176,966	3%	
Washington ocean	62,488	29,968	2,274,931	1,949,995	2,337,418	32%	1,979,963	36%	
Washington Puget Sound	2,092	1,073	7,428	6,367	9,520	0%	7,440	0%	
Oregon	524,630	276,010	1,812,950	1,554,001	2,337,581	32%	1,830,011	33%	
California	53,534	24,240	78,940	67,664	132,474	2%	91,904	2%	
Columbia Basin inland									
Freshwater sport									
Mainstem	0	0	745,099	638,674	745,099	10%	638,674	12%	
Tributary	0	0	0	0	0	0%	0	0%	
Gillnet	1,033,242	613,125	0	0	1,033,242	14%	613,125	11%	
Tribal	5,842	3,467	0	0	5,842	0%	3,467	0%	
Other	0	0	0	0	0	0%	0	0%	
Hatchery									
Hatchery surplus market	231,010	140,850	0	0	231,010	3%	140,850	3%	
Hatchery carcass	112,881	69,422	0	0	112,881	2%	69,422	1%	
Total with hatchery surplus utilization					7,249,852	100%	5,551,848	100%	
Total without hatchery surplus utilization					6,905,961		5,341,576		

Species: Spring/Summer Chinook
Alternative: NMFS Cap (1970's-1990's Actual)

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	21,408	10,473	0	0	21,408	7%	10,473	6%
British Columbia	43,335	21,237	3,715	3,184	47,050	15%	24,422	14%
Washington ocean	5,982	2,932	7,430	6,369	13,412	4%	9,301	5%
Washington Puget Sound	2,552	1,312	0	0	2,552	1%	1,312	1%
Oregon	2,604	1,340	3,715	3,184	6,319	2%	4,525	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	39,882	20,206	0	0	39,882	12%	20,206	11%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	179,644	98,270	0	0	179,644	56%	98,270	56%
Hatchery carcass	13,052	8,027	0	0	13,052	4%	8,027	5%
Total with hatchery surplus utilization					323,319	100%	176,536	100%
Total without hatchery surplus utilization					130,623		70,239	
Upper Columbia								
Alaska	54,743	26,782	0	0	54,743	7%	26,782	6%
British Columbia	110,817	54,308	9,500	8,143	120,317	15%	62,451	14%
Washington ocean	15,298	7,499	19,000	16,286	34,298	4%	23,785	5%
Washington Puget Sound	6,526	3,355	0	0	6,526	1%	3,355	1%
Oregon	6,658	3,428	9,500	8,143	16,158	2%	11,571	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	101,986	51,671	0	0	101,986	12%	51,671	11%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	459,383	251,295	0	0	459,383	56%	251,295	56%
Hatchery carcass	33,376	20,526	0	0	33,376	4%	20,526	5%
Total with hatchery surplus utilization					826,788	100%	451,436	100%
Total without hatchery surplus utilization					334,029		179,614	
Middle Columbia								
Alaska	57,241	28,004	0	0	57,241	7%	28,004	6%
British Columbia	115,872	56,786	9,933	8,515	125,806	15%	65,300	14%
Washington ocean	15,996	7,841	19,867	17,029	35,863	4%	24,870	5%
Washington Puget Sound	6,824	3,508	0	0	6,824	1%	3,508	1%
Oregon	6,962	3,584	9,933	8,515	16,895	2%	12,099	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	106,639	54,028	0	0	106,639	12%	54,028	11%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	480,340	262,759	0	0	480,340	56%	262,759	56%
Hatchery carcass	34,899	21,463	0	0	34,899	4%	21,463	5%
Total with hatchery surplus utilization					864,506	100%	472,030	100%
Total without hatchery surplus utilization					349,267		187,808	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	453,060	221,649	4,368	3,744	457,428	12%	225,393	10%
British Columbia	560,466	274,668	43,679	37,440	604,145	16%	312,108	14%
Washington ocean	140,675	68,954	43,679	37,440	184,354	5%	106,395	5%
Washington Puget Sound	300	154	1,310	1,123	1,610	0%	1,277	0%
Oregon	30,612	15,761	43,679	37,440	74,291	2%	53,201	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	873,579	748,803	873,579	23%	748,803	33%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	717,718	363,627	0	0	717,718	19%	363,627	16%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	769,227	420,789	0	0	769,227	21%	420,789	19%
Hatchery carcass	44,186	27,174	0	0	44,186	1%	27,174	1%
Total with hatchery surplus utilization					3,726,538	100%	2,258,767	100%
Total without hatchery surplus utilization					2,913,125		1,810,804	
<u>Willamette</u>								
Alaska	650,347	318,167	6,270	5,374	656,617	12%	323,541	10%
British Columbia	804,524	394,273	62,699	53,744	867,224	16%	448,017	14%
Washington ocean	201,933	98,981	62,699	53,744	264,632	5%	152,725	5%
Washington Puget Sound	431	221	1,881	1,612	2,312	0%	1,834	0%
Oregon	43,942	22,624	62,699	53,744	106,641	2%	76,368	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,253,983	1,074,873	1,253,983	23%	1,074,873	33%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,030,252	521,971	0	0	1,030,252	19%	521,971	16%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,104,191	604,023	0	0	1,104,191	21%	604,023	19%
Hatchery carcass	63,427	39,008	0	0	63,427	1%	39,008	1%
Total with hatchery surplus utilization					5,349,279	100%	3,242,358	100%
Total without hatchery surplus utilization					4,181,661		2,599,328	
<u>Total</u>								
Alaska	1,236,799	605,075	10,638	9,118	1,247,437	11%	614,193	9%
British Columbia	1,635,015	801,272	129,526	111,026	1,764,542	16%	912,298	14%
Washington ocean	379,885	186,207	152,675	130,868	532,560	5%	317,075	5%
Washington Puget Sound	16,634	8,551	3,191	2,736	19,825	0%	11,286	0%
Oregon	90,776	46,737	129,526	111,026	220,303	2%	157,763	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,127,562	1,823,675	2,127,562	19%	1,823,675	28%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,747,970	885,598	0	0	1,747,970	16%	885,598	13%
Tribal	248,507	125,905	0	0	248,507	2%	125,905	2%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	2,992,786	1,637,137	0	0	2,992,786	27%	1,637,137	25%
Hatchery carcass	188,940	116,198	0	0	188,940	2%	116,198	2%
Total with hatchery surplus utilization					11,090,431	100%	6,601,128	100%
Total without hatchery surplus utilization					7,908,705		4,847,793	

Species: Spring/Summer Chinook
Alternative: 80's Actual

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	22,713	11,112	0	0	22,713	7%	11,112	6%
British Columbia	45,978	22,532	3,942	3,379	49,920	14%	25,911	14%
Washington ocean	6,347	3,111	7,883	6,757	14,230	4%	9,868	5%
Washington Puget Sound	2,708	1,392	0	0	2,708	1%	1,392	1%
Oregon	2,762	1,422	3,942	3,379	6,704	2%	4,801	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	43,176	21,875	0	0	43,176	12%	21,875	12%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	194,680	106,495	0	0	194,680	56%	106,495	56%
Hatchery carcass	13,664	8,403	0	0	13,664	4%	8,403	4%
Total with hatchery surplus utilization					347,795	100%	189,858	100%
Total without hatchery surplus utilization					139,451		74,959	
Upper Columbia								
Alaska	58,081	28,415	0	0	58,081	7%	28,415	6%
British Columbia	117,574	57,619	10,079	8,640	127,653	14%	66,259	14%
Washington ocean	16,231	7,956	20,158	17,279	36,389	4%	25,235	5%
Washington Puget Sound	6,924	3,560	0	0	6,924	1%	3,560	1%
Oregon	7,064	3,637	10,079	8,640	17,143	2%	12,276	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	110,410	55,938	0	0	110,410	12%	55,938	12%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	497,829	272,326	0	0	497,829	56%	272,326	56%
Hatchery carcass	34,942	21,489	0	0	34,942	4%	21,489	4%
Total with hatchery surplus utilization					889,371	100%	485,499	100%
Total without hatchery surplus utilization					356,600		191,683	
Middle Columbia								
Alaska	60,731	29,711	0	0	60,731	7%	29,711	6%
British Columbia	122,937	60,248	10,539	9,034	133,476	14%	69,281	14%
Washington ocean	16,971	8,319	21,078	18,067	38,049	4%	26,386	5%
Washington Puget Sound	7,240	3,722	0	0	7,240	1%	3,722	1%
Oregon	7,386	3,803	10,539	9,034	17,925	2%	12,836	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	115,446	58,490	0	0	115,446	12%	58,490	12%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	520,539	284,749	0	0	520,539	56%	284,749	56%
Hatchery carcass	36,536	22,469	0	0	36,536	4%	22,469	4%
Total with hatchery surplus utilization					929,942	100%	507,646	100%
Total without hatchery surplus utilization					372,867		200,427	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	473,664	231,729	4,567	3,914	478,230	12%	235,643	10%
British Columbia	585,955	287,159	45,665	39,143	631,620	16%	326,302	14%
Washington ocean	147,073	72,090	45,665	39,143	192,738	5%	111,233	5%
Washington Puget Sound	314	161	1,370	1,174	1,684	0%	1,336	0%
Oregon	32,004	16,478	45,665	39,143	77,669	2%	55,620	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	913,307	782,856	913,307	23%	782,856	33%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	750,358	380,164	0	0	750,358	19%	380,164	16%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	811,395	443,855	0	0	811,395	21%	443,855	19%
Hatchery carcass	45,903	28,230	0	0	45,903	1%	28,230	1%
Total with hatchery surplus utilization					3,902,904	100%	2,365,240	100%
Total without hatchery surplus utilization					3,045,606		1,893,154	
<u>Willamette</u>								
Alaska	685,403	335,317	6,608	5,664	692,011	12%	340,981	10%
British Columbia	847,891	415,526	66,079	56,641	913,970	16%	472,167	14%
Washington ocean	212,818	104,317	66,079	56,641	278,897	5%	160,957	5%
Washington Puget Sound	454	233	1,982	1,699	2,436	0%	1,933	0%
Oregon	46,310	23,843	66,079	56,641	112,389	2%	80,484	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,321,578	1,132,812	1,321,578	23%	1,132,812	33%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,085,786	550,107	0	0	1,085,786	19%	550,107	16%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,175,936	643,270	0	0	1,175,936	21%	643,270	19%
Hatchery carcass	66,348	40,804	0	0	66,348	1%	40,804	1%
Total with hatchery surplus utilization					5,649,352	100%	3,423,514	100%
Total without hatchery surplus utilization					4,407,067		2,739,441	
<u>Total</u>								
Alaska	1,300,592	636,284	11,174	9,578	1,311,767	11%	645,862	9%
British Columbia	1,720,335	843,084	136,304	116,835	1,856,639	16%	959,920	14%
Washington ocean	399,440	195,793	160,864	137,887	560,304	5%	333,680	5%
Washington Puget Sound	17,640	9,068	3,352	2,874	20,993	0%	11,942	0%
Oregon	95,526	49,183	136,304	116,835	231,830	2%	166,018	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,234,885	1,915,669	2,234,885	19%	1,915,669	27%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,836,144	930,271	0	0	1,836,144	16%	930,271	13%
Tribal	269,032	136,303	0	0	269,032	2%	136,303	2%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	3,200,379	1,750,696	0	0	3,200,379	27%	1,750,696	25%
Hatchery carcass	197,393	121,396	0	0	197,393	2%	121,396	2%
Total with hatchery surplus utilization					11,719,364	100%	6,971,756	100%
Total without hatchery surplus utilization					8,321,593		5,099,664	

Species: Spring/Summer Chinook
Alternative: Run Doubling Objective

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	45,426	22,224	0	0	45,426	2%	22,224	1%
British Columbia	91,956	45,065	7,883	6,757	99,839	4%	51,822	3%
Washington ocean	12,694	6,222	15,766	13,514	28,460	1%	19,737	1%
Washington Puget Sound	5,416	2,784	0	0	5,416	0%	2,784	0%
Oregon	5,525	2,844	7,883	6,757	13,408	1%	9,602	1%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	725,517	621,889	725,517	32%	621,889	40%
Tributary	0	0	241,839	254,858	241,839	11%	254,858	16%
Gillnet	132,461	67,110	0	0	132,461	6%	67,110	4%
Tribal	1,004,944	509,148	0	0	1,004,944	44%	509,148	33%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	0	0	0	0	0	0%	0	0%
Hatchery carcass	5,737	3,529	0	0	5,737	0%	3,529	0%
Total with hatchery surplus utilization					2,303,047	100%	1,562,702	100%
Total without hatchery surplus utilization					2,297,310		1,559,174	
Upper Columbia								
Alaska	116,163	56,830	0	0	116,163	2%	56,830	1%
British Columbia	235,147	115,239	20,158	17,279	255,306	4%	132,518	3%
Washington ocean	32,462	15,912	40,317	34,558	72,778	1%	50,470	1%
Washington Puget Sound	13,849	7,119	0	0	13,849	0%	7,119	0%
Oregon	14,128	7,274	20,158	17,279	34,286	1%	24,553	1%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,855,272	1,590,277	1,855,272	32%	1,590,277	40%
Tributary	0	0	618,424	651,716	618,424	11%	651,716	16%
Gillnet	338,725	171,613	0	0	338,725	6%	171,613	4%
Tribal	2,569,814	1,301,980	0	0	2,569,814	44%	1,301,980	33%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	0	0	0	0	0	0%	0	0%
Hatchery carcass	14,672	9,023	0	0	14,672	0%	9,023	0%
Total with hatchery surplus utilization					5,889,288	100%	3,996,099	100%
Total without hatchery surplus utilization					5,874,616		3,987,075	
Middle Columbia								
Alaska	121,462	59,422	0	0	121,462	2%	59,422	1%
British Columbia	245,874	120,496	21,078	18,067	266,952	4%	138,563	3%
Washington ocean	33,943	16,638	42,156	36,135	76,098	1%	52,772	1%
Washington Puget Sound	14,481	7,444	0	0	14,481	0%	7,444	0%
Oregon	14,772	7,606	21,078	18,067	35,850	1%	25,673	1%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,939,904	1,662,821	1,939,904	32%	1,662,821	40%
Tributary	0	0	646,635	681,445	646,635	11%	681,445	16%
Gillnet	354,176	179,441	0	0	354,176	6%	179,441	4%
Tribal	2,687,041	1,361,372	0	0	2,687,041	44%	1,361,372	33%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	0	0	0	0	0	0%	0	0%
Hatchery carcass	15,341	9,435	0	0	15,341	0%	9,435	0%
Total with hatchery surplus utilization					6,157,939	100%	4,178,388	100%
Total without hatchery surplus utilization					6,142,598		4,168,953	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	947,328	463,458	9,133	7,829	956,461	12%	471,286	10%
British Columbia	1,171,910	574,318	91,331	78,286	1,263,241	16%	652,603	14%
Washington ocean	294,146	144,181	91,331	78,286	385,476	5%	222,466	5%
Washington Puget Sound	627	323	2,740	2,349	3,367	0%	2,671	0%
Oregon	64,008	32,955	91,331	78,286	155,338	2%	111,241	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,826,614	1,565,713	1,826,614	23%	1,565,713	33%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,500,716	760,328	0	0	1,500,716	19%	760,328	16%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,780,780	974,136	0	0	1,780,780	22%	974,136	20%
Hatchery carcass	85,373	52,504	0	0	85,373	1%	52,504	1%
Total with hatchery surplus utilization					7,957,366	100%	4,812,949	100%
Total without hatchery surplus utilization					6,091,213		3,786,309	
<u>Willamette</u>								
Alaska	1,370,806	670,635	13,216	11,328	1,384,022	12%	681,963	10%
British Columbia	1,695,782	831,052	132,158	113,281	1,827,940	16%	944,333	14%
Washington ocean	425,636	208,633	132,158	113,281	557,794	5%	321,914	5%
Washington Puget Sound	908	467	3,965	3,398	4,873	0%	3,865	0%
Oregon	92,621	47,687	132,158	113,281	224,778	2%	160,968	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,643,155	2,265,625	2,643,155	23%	2,265,625	33%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	2,171,572	1,100,213	0	0	2,171,572	19%	1,100,213	16%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	2,578,660	1,410,599	0	0	2,578,660	22%	1,410,599	20%
Hatchery carcass	123,462	75,929	0	0	123,462	1%	75,929	1%
Total with hatchery surplus utilization					11,516,257	100%	6,965,409	100%
Total without hatchery surplus utilization					8,814,135		5,478,881	
<u>Total</u>								
Alaska	2,601,184	1,272,568	22,349	19,157	2,623,533	8%	1,291,725	6%
British Columbia	3,440,670	1,686,169	272,608	233,670	3,713,277	11%	1,919,839	9%
Washington ocean	798,880	391,585	321,727	275,774	1,120,608	3%	667,359	3%
Washington Puget Sound	35,280	18,137	6,705	5,747	41,985	0%	23,884	0%
Oregon	191,053	98,366	272,608	233,670	463,660	1%	332,036	2%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	8,990,462	7,706,325	8,990,462	27%	7,706,325	36%
Tributary	0	0	1,506,898	1,588,019	1,506,898	4%	1,588,019	7%
Gillnet	4,497,649	2,278,706	0	0	4,497,649	13%	2,278,706	11%
Tribal	6,261,798	3,172,500	0	0	6,261,798	19%	3,172,500	15%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	4,359,440	2,384,735	0	0	4,359,440	13%	2,384,735	11%
Hatchery carcass	244,586	150,420	0	0	244,586	1%	150,420	1%
Total with hatchery surplus utilization					33,823,897	100%	21,515,547	100%
Total without hatchery surplus utilization					29,219,871		18,980,393	

Species: Spring/Summer Chinook
Alternative: Early 90's

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
Snake River								
Alaska	5,439	2,661	0	0	5,439	19%	2,661	17%
British Columbia	11,010	5,395	944	809	11,953	42%	6,204	39%
Washington ocean	1,520	745	1,888	1,618	3,407	12%	2,363	15%
Washington Puget Sound	648	333	0	0	648	2%	333	2%
Oregon	661	341	944	809	1,605	6%	1,150	7%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	86	44	0	0	86	0%	44	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	0	0	0	0	0	0%	0	0%
Hatchery carcass	5,393	3,317	0	0	5,393	19%	3,317	21%
Total with hatchery surplus utilization					28,533	100%	16,072	100%
Total without hatchery surplus utilization					23,140		12,755	
Upper Columbia								
Alaska	13,908	6,804	0	0	13,908	19%	6,804	17%
British Columbia	28,153	13,797	2,414	2,069	30,567	42%	15,866	39%
Washington ocean	3,887	1,905	4,827	4,138	8,714	12%	6,043	15%
Washington Puget Sound	1,658	852	0	0	1,658	2%	852	2%
Oregon	1,691	871	2,414	2,069	4,105	6%	2,940	7%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	221	112	0	0	221	0%	112	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	0	0	0	0	0	0%	0	0%
Hatchery carcass	13,791	8,482	0	0	13,791	19%	8,482	21%
Total with hatchery surplus utilization					72,964	100%	41,098	100%
Total without hatchery surplus utilization					59,172		32,617	
Middle Columbia								
Alaska	14,542	7,114	0	0	14,542	19%	7,114	17%
British Columbia	29,438	14,427	2,524	2,163	31,961	42%	16,590	39%
Washington ocean	4,064	1,992	5,047	4,326	9,111	12%	6,318	15%
Washington Puget Sound	1,734	891	0	0	1,734	2%	891	2%
Oregon	1,769	911	2,524	2,163	4,292	6%	3,074	7%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	0	0	0	0%	0	0%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	231	117	0	0	231	0%	117	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	0	0	0	0	0	0%	0	0%
Hatchery carcass	14,421	8,869	0	0	14,421	19%	8,869	21%
Total with hatchery surplus utilization					76,292	100%	42,973	100%
Total without hatchery surplus utilization					61,872		34,104	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	153,667	75,178	1,481	1,270	155,148	13%	76,448	11%
British Columbia	190,096	93,161	14,815	12,699	204,911	17%	105,859	15%
Washington ocean	47,714	23,388	14,815	12,699	62,528	5%	36,086	5%
Washington Puget Sound	102	52	444	381	546	0%	433	0%
Oregon	10,383	5,346	14,815	12,699	25,198	2%	18,044	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	296,296	253,975	296,296	25%	253,975	35%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	243,432	123,333	0	0	243,432	21%	123,333	17%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	165,978	90,795	0	0	165,978	14%	90,795	13%
Hatchery carcass	18,852	11,594	0	0	18,852	2%	11,594	2%
Total with hatchery surplus utilization					1,172,890	100%	716,568	100%
Total without hatchery surplus utilization					988,060		614,180	
<u>Willamette</u>								
Alaska	220,582	107,914	2,127	1,823	222,708	13%	109,737	11%
British Columbia	272,875	133,728	21,266	18,229	294,141	17%	151,956	15%
Washington ocean	68,491	33,572	21,266	18,229	89,757	5%	51,800	5%
Washington Puget Sound	146	75	638	547	784	0%	622	0%
Oregon	14,904	7,673	21,266	18,229	36,170	2%	25,902	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	425,320	364,570	425,320	25%	364,570	35%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	349,436	177,040	0	0	349,436	21%	177,040	17%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	238,254	130,332	0	0	238,254	14%	130,332	13%
Hatchery carcass	27,061	16,642	0	0	27,061	2%	16,642	2%
Total with hatchery surplus utilization					1,683,631	100%	1,028,602	100%
Total without hatchery surplus utilization					1,418,316		881,628	
<u>Total</u>								
Alaska	408,137	199,671	3,608	3,093	411,745	14%	202,764	11%
British Columbia	531,572	260,507	41,962	35,968	573,534	19%	296,476	16%
Washington ocean	125,675	61,602	47,843	41,009	173,517	6%	102,611	6%
Washington Puget Sound	4,288	2,204	1,082	928	5,370	0%	3,132	0%
Oregon	29,408	15,141	41,962	35,968	71,370	2%	51,109	3%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	721,616	618,546	721,616	24%	618,546	34%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	592,868	300,373	0	0	592,868	20%	300,373	16%
Tribal	538	273	0	0	538	0%	273	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	404,233	221,127	0	0	404,233	13%	221,127	12%
Hatchery carcass	79,518	48,904	0	0	79,518	3%	48,904	3%
Total with hatchery surplus utilization					3,034,310	100%	1,845,313	100%
Total without hatchery surplus utilization					2,550,559		1,575,283	

Species: Fall Chinook
Alternative: NMFS Cap (1970's-1990's Actual)

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	30,510	14,926	44	38	30,554	9%	14,964	8%
British Columbia	128,669	63,057	8,824	7,564	137,493	42%	70,621	39%
Washington ocean	15,986	7,836	8,824	7,564	24,811	8%	15,400	8%
Washington Puget Sound	2	1	2	2	4	0%	3	0%
Oregon	4,638	2,388	2,206	1,891	6,844	2%	4,279	2%
California	2	1	2	2	4	0%	3	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	6,618	5,673	6,618	2%	5,673	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	36,374	20,764	0	0	36,374	11%	20,764	11%
Tribal	79,877	45,597	0	0	79,877	24%	45,597	25%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	5,147	3,157	0	0	5,147	2%	3,157	2%
Hatchery carcass	2,447	1,505	0	0	2,447	1%	1,505	1%
Total with hatchery surplus utilization					330,173	100%	181,965	100%
Total without hatchery surplus utilization					322,579		177,302	
Upper Columbia								
Alaska	613,880	300,326	888	761	614,768	9%	301,087	8%
British Columbia	2,588,906	1,268,745	177,550	152,190	2,766,456	42%	1,420,935	39%
Washington ocean	321,655	157,665	177,550	152,190	499,205	8%	309,855	8%
Washington Puget Sound	30	16	44	38	75	0%	54	0%
Oregon	93,325	48,050	44,388	38,048	137,712	2%	86,097	2%
California	40	17	44	38	84	0%	55	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	133,163	114,143	133,163	2%	114,143	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	731,863	417,776	0	0	731,863	11%	417,776	11%
Tribal	1,607,179	917,441	0	0	1,607,179	24%	917,441	25%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	103,555	63,525	0	0	103,555	2%	63,525	2%
Hatchery carcass	49,236	30,280	0	0	49,236	1%	30,280	1%
Total with hatchery surplus utilization					6,643,295	100%	3,661,248	100%
Total without hatchery surplus utilization					6,490,505		3,567,443	
Middle Columbia								
Alaska	1,195,026	584,638	1,728	1,481	1,196,755	9%	586,120	8%
British Columbia	5,039,763	2,469,837	345,633	296,265	5,385,396	42%	2,766,102	39%
Washington ocean	626,158	306,922	345,633	296,265	971,791	8%	603,187	8%
Washington Puget Sound	59	31	86	74	146	0%	105	0%
Oregon	181,673	93,537	86,408	74,066	268,082	2%	167,603	2%
California	77	32	86	74	164	0%	107	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	259,225	222,199	259,225	2%	222,199	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,424,700	813,275	0	0	1,424,700	11%	813,275	11%
Tribal	3,128,657	1,785,961	0	0	3,128,657	24%	1,785,961	25%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	201,588	123,663	0	0	201,588	2%	123,663	2%
Hatchery carcass	95,846	58,945	0	0	95,846	1%	58,945	1%
Total with hatchery surplus utilization					12,932,348	100%	7,127,266	100%
Total without hatchery surplus utilization					12,634,914		6,944,658	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	510,209	249,608	0	0	510,209	3%	249,608	2%
British Columbia	6,885,422	3,374,339	885,395	758,931	7,770,817	38%	4,133,270	33%
Washington ocean	2,851,562	1,397,744	2,951,317	2,529,770	5,802,879	29%	3,927,514	31%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	620,514	319,480	295,132	252,977	915,646	5%	572,457	5%
California	132,317	55,411	29,513	25,298	161,831	1%	80,709	1%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,213,487	1,897,328	2,213,487	11%	1,897,328	15%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	2,230,310	1,273,149	0	0	2,230,310	11%	1,273,149	10%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	447,370	274,437	0	0	447,370	2%	274,437	2%
Hatchery carcass	293,586	180,555	0	0	293,586	1%	180,555	1%
Total with hatchery surplus utilization					20,346,134	100%	12,589,026	100%
Total without hatchery surplus utilization					19,605,178		12,134,033	
<u>Willamette</u>								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA		NA	
<u>Total</u>								
Alaska	2,349,626	1,149,499	2,660	2,280	2,352,286	6%	1,151,779	5%
British Columbia	14,642,759	7,175,977	1,417,403	1,214,950	16,060,162	40%	8,390,928	36%
Washington ocean	3,815,361	1,870,166	3,483,324	2,985,789	7,298,685	18%	4,855,956	21%
Washington Puget Sound	91	47	133	114	224	0%	161	0%
Oregon	900,151	463,455	428,134	366,982	1,328,284	3%	830,436	4%
California	132,437	55,461	29,646	25,412	162,083	0%	80,873	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,612,493	2,239,342	2,612,493	6%	2,239,342	10%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	4,423,246	2,524,963	0	0	4,423,246	11%	2,524,963	11%
Tribal	4,815,713	2,748,999	0	0	4,815,713	12%	2,748,999	12%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	757,659	464,783	0	0	757,659	2%	464,783	2%
Hatchery carcass	441,114	271,285	0	0	441,114	1%	271,285	1%
Total with hatchery surplus utilization					40,251,950	100%	23,559,504	100%
Total without hatchery surplus utilization					39,053,176		22,823,436	

Species: Fall Chinook
Alternative: 80's Actual

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
Snake River								
Alaska	36,884	18,045	53	46	36,938	9%	18,091	8%
British Columbia	155,552	76,231	10,668	9,144	166,220	41%	85,376	38%
Washington ocean	20,232	9,917	11,168	9,573	31,399	8%	19,490	9%
Washington Puget Sound	2	1	3	2	5	0%	3	0%
Oregon	5,870	3,022	2,792	2,393	8,662	2%	5,415	2%
California	3	1	3	2	5	0%	3	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	8,376	7,179	8,376	2%	7,179	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	46,033	26,278	0	0	46,033	11%	26,278	12%
Tribal	101,090	57,706	0	0	101,090	25%	57,706	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	6,513	3,996	0	0	6,513	2%	3,996	2%
Hatchery carcass	2,539	1,561	0	0	2,539	1%	1,561	1%
Total with hatchery surplus utilization					407,780	100%	225,098	100%
Total without hatchery surplus utilization					398,728		219,541	
Upper Columbia								
Alaska	742,181	363,095	1,073	920	743,255	9%	364,015	8%
British Columbia	3,129,988	1,533,913	214,658	183,998	3,344,646	41%	1,717,911	38%
Washington ocean	407,102	199,548	224,717	192,620	631,819	8%	392,168	9%
Washington Puget Sound	39	20	56	48	95	0%	68	0%
Oregon	118,117	60,814	56,179	48,155	174,296	2%	108,969	2%
California	50	21	56	48	107	0%	69	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	168,538	144,465	168,538	2%	144,465	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	926,282	528,758	0	0	926,282	11%	528,758	12%
Tribal	2,034,127	1,161,160	0	0	2,034,127	25%	1,161,160	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	131,064	80,401	0	0	131,064	2%	80,401	2%
Hatchery carcass	51,085	31,417	0	0	51,085	1%	31,417	1%
Total with hatchery surplus utilization					8,205,314	100%	4,529,401	100%
Total without hatchery surplus utilization					8,023,164		4,417,583	
Middle Columbia								
Alaska	1,444,783	706,826	2,089	1,791	1,446,873	9%	708,617	8%
British Columbia	6,093,058	2,986,025	417,869	358,184	6,510,927	41%	3,344,209	38%
Washington ocean	792,494	388,455	437,449	374,967	1,229,943	8%	763,422	9%
Washington Puget Sound	75	39	109	94	184	0%	132	0%
Oregon	229,934	118,385	109,362	93,742	339,297	2%	212,126	2%
California	98	41	109	94	207	0%	135	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	328,087	281,225	328,087	2%	281,225	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,803,166	1,029,318	0	0	1,803,166	11%	1,029,318	12%
Tribal	3,959,774	2,260,395	0	0	3,959,774	25%	2,260,395	26%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	255,139	156,514	0	0	255,139	2%	156,514	2%
Hatchery carcass	99,446	61,159	0	0	99,446	1%	61,159	1%
Total with hatchery surplus utilization					15,973,044	100%	8,817,253	100%
Total without hatchery surplus utilization					15,618,460		8,599,580	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	611,023	298,928	0	0	611,023	2%	298,928	2%
British Columbia	8,245,935	4,041,086	1,060,343	908,891	9,306,278	36%	4,949,976	31%
Washington ocean	3,724,827	1,825,790	3,855,130	3,304,489	7,579,957	30%	5,130,278	32%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	810,541	417,318	385,513	330,449	1,196,054	5%	747,767	5%
California	172,838	72,380	38,551	33,045	211,390	1%	105,425	1%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,891,347	2,478,367	2,891,347	11%	2,478,367	16%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	2,913,322	1,663,039	0	0	2,913,322	11%	1,663,039	10%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	584,373	358,481	0	0	584,373	2%	358,481	2%
Hatchery carcass	302,796	186,220	0	0	302,796	1%	186,220	1%
Total with hatchery surplus utilization					25,596,540	100%	15,918,481	100%
Total without hatchery surplus utilization					24,709,371		15,373,780	
<u>Willamette</u>								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA		NA	
<u>Total</u>								
Alaska	2,834,872	1,386,894	3,216	2,757	2,838,088	6%	1,389,651	5%
British Columbia	17,624,534	8,637,255	1,703,539	1,460,217	19,328,072	39%	10,097,472	34%
Washington ocean	4,944,655	2,423,710	4,528,464	3,881,648	9,473,119	19%	6,305,358	21%
Washington Puget Sound	116	59	168	144	284	0%	204	0%
Oregon	1,164,462	599,539	553,846	474,739	1,718,309	3%	1,074,277	4%
California	172,989	72,443	38,720	33,189	211,709	0%	105,632	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	3,396,348	2,911,236	3,396,348	7%	2,911,236	10%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	5,688,803	3,247,393	0	0	5,688,803	11%	3,247,393	11%
Tribal	6,094,991	3,479,261	0	0	6,094,991	12%	3,479,261	12%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	977,090	599,391	0	0	977,090	2%	599,391	2%
Hatchery carcass	455,866	280,357	0	0	455,866	1%	280,357	1%
Total with hatchery surplus utilization					50,182,678	100%	29,490,233	100%
Total without hatchery surplus utilization					48,749,723		28,610,485	

Species: Fall Chinook
Alternative: Run Doubling Objective

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
Snake River								
Alaska	73,769	36,090	107	91	73,876	9%	36,181	8%
British Columbia	311,104	152,463	21,336	18,288	332,440	39%	170,751	36%
Washington ocean	44,797	21,958	24,727	21,195	69,524	8%	43,153	9%
Washington Puget Sound	4	2	6	5	10	0%	7	0%
Oregon	12,997	6,692	6,182	5,299	19,179	2%	11,991	3%
California	6	2	6	5	12	0%	8	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	18,545	15,897	18,545	2%	15,897	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	101,926	58,183	0	0	101,926	12%	58,183	12%
Tribal	223,830	127,771	0	0	223,830	26%	127,771	27%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	14,422	8,847	0	0	14,422	2%	8,847	2%
Hatchery carcass	3,071	1,888	0	0	3,071	0%	1,888	0%
Total with hatchery surplus utilization					856,835	100%	474,678	100%
Total without hatchery surplus utilization					839,343		463,942	
Upper Columbia								
Alaska	1,484,363	726,189	2,147	1,840	1,486,510	9%	728,029	8%
British Columbia	6,259,976	3,067,827	429,317	367,996	6,689,293	39%	3,435,823	36%
Washington ocean	901,391	441,833	497,559	426,491	1,398,950	8%	868,324	9%
Washington Puget Sound	85	44	124	107	210	0%	151	0%
Oregon	261,530	134,652	124,390	106,623	385,919	2%	241,275	3%
California	112	47	124	107	236	0%	153	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	373,169	319,868	373,169	2%	319,868	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	2,050,939	1,170,757	0	0	2,050,939	12%	1,170,757	12%
Tribal	4,503,886	2,570,996	0	0	4,503,886	26%	2,570,996	27%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	290,197	178,020	0	0	290,197	2%	178,020	2%
Hatchery carcass	61,783	37,997	0	0	61,783	0%	37,997	0%
Total with hatchery surplus utilization					17,241,092	100%	9,551,392	100%
Total without hatchery surplus utilization					16,889,112		9,335,375	
Middle Columbia								
Alaska	2,889,567	1,413,652	4,179	3,582	2,893,745	9%	1,417,234	8%
British Columbia	12,186,116	5,972,050	835,739	716,367	13,021,855	39%	6,688,417	36%
Washington ocean	1,754,711	860,103	968,584	830,238	2,723,295	8%	1,690,340	9%
Washington Puget Sound	166	86	242	208	409	0%	293	0%
Oregon	509,112	262,123	242,146	207,559	751,258	2%	469,682	3%
California	217	91	242	208	459	0%	298	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	726,438	622,678	726,438	2%	622,678	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	3,992,503	2,279,078	0	0	3,992,503	12%	2,279,078	12%
Tribal	8,767,584	5,004,882	0	0	8,767,584	26%	5,004,882	27%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	564,919	346,547	0	0	564,919	2%	346,547	2%
Hatchery carcass	120,271	73,967	0	0	120,271	0%	73,967	0%
Total with hatchery surplus utilization					33,562,736	100%	18,593,418	100%
Total without hatchery surplus utilization					32,877,546		18,172,905	

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
<u>Lower Columbia</u>								
Alaska	1,222,045	597,857	0	0	1,222,045	2%	597,857	2%
British Columbia	16,491,870	8,082,171	2,120,686	1,817,782	18,612,557	32%	9,899,953	27%
Washington ocean	9,017,594	4,420,133	9,333,051	7,999,980	18,350,645	32%	12,420,114	34%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	1,962,274	1,010,303	933,305	799,998	2,895,579	5%	1,810,301	5%
California	418,432	175,228	93,331	80,000	511,762	1%	255,228	1%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	6,999,788	5,999,985	6,999,788	12%	5,999,985	17%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	7,052,987	4,026,123	0	0	7,052,987	12%	4,026,123	11%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,414,735	867,863	0	0	1,414,735	2%	867,863	2%
Hatchery carcass	358,619	220,550	0	0	358,619	1%	220,550	1%
Total with hatchery surplus utilization					57,418,718	100%	36,097,973	100%
Total without hatchery surplus utilization					55,645,365		35,009,560	
<u>Willamette</u>								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA		NA	
<u>Total</u>								
Alaska	5,669,744	2,773,788	6,432	5,513	5,676,176	5%	2,779,301	4%
British Columbia	35,249,067	17,274,511	3,407,078	2,920,434	38,656,145	35%	20,194,944	31%
Washington ocean	11,718,492	5,744,026	10,823,922	9,277,905	22,542,414	21%	15,021,931	23%
Washington Puget Sound	256	132	373	319	629	0%	451	0%
Oregon	2,745,913	1,413,770	1,306,023	1,119,479	4,051,936	4%	2,533,249	4%
California	418,766	175,368	93,703	80,319	512,469	0%	255,687	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	8,117,941	6,958,429	8,117,941	7%	6,958,429	11%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	13,198,355	7,534,141	0	0	13,198,355	12%	7,534,141	12%
Tribal	13,495,301	7,703,649	0	0	13,495,301	12%	7,703,649	12%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	2,284,273	1,401,277	0	0	2,284,273	2%	1,401,277	2%
Hatchery carcass	543,743	334,402	0	0	543,743	0%	334,402	1%
Total with hatchery surplus utilization					109,079,381	100%	64,717,461	100%
Total without hatchery surplus utilization					106,251,365		62,981,782	

Species: Fall Chinook
Alternative: Early 90's

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	17,696	8,657	26	22	17,721	10%	8,679	9%
British Columbia	74,628	36,573	5,118	4,387	79,746	44%	40,960	42%
Washington ocean	8,015	3,929	4,424	3,792	12,440	7%	7,721	8%
Washington Puget Sound	1	0	1	1	2	0%	1	0%
Oregon	2,326	1,197	1,106	948	3,432	2%	2,145	2%
California	1	0	1	1	2	0%	1	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	3,318	2,844	3,318	2%	2,844	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	18,238	10,411	0	0	18,238	10%	10,411	11%
Tribal	40,050	22,862	0	0	40,050	22%	22,862	23%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	2,581	1,583	0	0	2,581	1%	1,583	2%
Hatchery carcass	2,001	1,231	0	0	2,001	1%	1,231	1%
Total with hatchery surplus utilization					179,531	100%	98,440	100%
Total without hatchery surplus utilization					174,949		95,626	
Upper Columbia								
Alaska	356,051	174,189	515	441	356,565	10%	174,631	9%
British Columbia	1,501,565	735,872	102,979	88,270	1,604,545	44%	824,143	42%
Washington ocean	161,276	79,052	89,023	76,307	250,299	7%	155,360	8%
Washington Puget Sound	15	8	22	19	38	0%	27	0%
Oregon	46,793	24,092	22,256	19,077	69,048	2%	43,169	2%
California	20	8	22	19	42	0%	27	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	66,767	57,230	66,767	2%	57,230	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	366,952	209,470	0	0	366,952	10%	209,470	11%
Tribal	805,830	460,000	0	0	805,830	22%	460,000	23%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	51,922	31,851	0	0	51,922	1%	31,851	2%
Hatchery carcass	40,269	24,765	0	0	40,269	1%	24,765	1%
Total with hatchery surplus utilization					3,612,276	100%	1,980,673	100%
Total without hatchery surplus utilization					3,520,086		1,924,056	
Middle Columbia								
Alaska	693,115	339,090	1,002	859	694,118	10%	339,949	9%
British Columbia	2,923,062	1,432,505	200,467	171,834	3,123,530	44%	1,604,339	42%
Washington ocean	313,952	153,889	173,298	148,546	487,250	7%	302,435	8%
Washington Puget Sound	30	15	43	37	73	0%	52	0%
Oregon	91,090	46,899	43,325	37,136	134,415	2%	84,035	2%
California	39	16	43	37	82	0%	53	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	129,974	111,409	129,974	2%	111,409	3%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	714,336	407,771	0	0	714,336	10%	407,771	11%
Tribal	1,568,691	895,471	0	0	1,568,691	22%	895,471	23%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	101,075	62,004	0	0	101,075	1%	62,004	2%
Hatchery carcass	78,390	48,210	0	0	78,390	1%	48,210	1%
Total with hatchery surplus utilization					7,031,934	100%	3,855,729	100%
Total without hatchery surplus utilization					6,852,469		3,745,515	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	352,493	172,449	0	0	352,493	3%	172,449	2%
British Columbia	4,757,002	2,331,264	611,702	524,331	5,368,704	42%	2,855,595	36%
Washington ocean	1,666,775	816,999	1,725,083	1,478,684	3,391,859	26%	2,295,683	29%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	362,699	186,740	172,508	147,868	535,207	4%	334,609	4%
California	77,341	32,388	17,251	14,787	94,592	1%	47,175	1%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,293,812	1,109,013	1,293,812	10%	1,109,013	14%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	1,303,645	744,172	0	0	1,303,645	10%	744,172	9%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	261,494	160,412	0	0	261,494	2%	160,412	2%
Hatchery carcass	250,609	154,124	0	0	250,609	2%	154,124	2%
Total with hatchery surplus utilization					12,852,416	100%	7,873,233	100%
Total without hatchery surplus utilization					12,340,314		7,558,696	
<u>Willamette</u>								
Alaska	NA	NA	NA	NA	NA	NA	NA	NA
British Columbia	NA	NA	NA	NA	NA	NA	NA	NA
Washington ocean	NA	NA	NA	NA	NA	NA	NA	NA
Washington Puget Sound	NA	NA	NA	NA	NA	NA	NA	NA
Oregon	NA	NA	NA	NA	NA	NA	NA	NA
California	NA	NA	NA	NA	NA	NA	NA	NA
Columbia Basin inland								
Freshwater sport								
Mainstem	NA	NA	NA	NA	NA	NA	NA	NA
Tributary	NA	NA	NA	NA	NA	NA	NA	NA
Gillnet	NA	NA	NA	NA	NA	NA	NA	NA
Tribal	NA	NA	NA	NA	NA	NA	NA	NA
Other	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery								
Hatchery surplus market	NA	NA	NA	NA	NA	NA	NA	NA
Hatchery carcass	NA	NA	NA	NA	NA	NA	NA	NA
Total with hatchery surplus utilization					NA	NA	NA	NA
Total without hatchery surplus utilization					NA		NA	
<u>Total</u>								
Alaska	1,419,355	694,386	1,543	1,322	1,420,898	6%	695,708	5%
British Columbia	9,256,258	4,536,215	920,266	788,822	10,176,525	43%	5,325,036	39%
Washington ocean	2,150,019	1,053,870	1,991,829	1,707,329	4,141,848	17%	2,761,199	20%
Washington Puget Sound	46	24	67	57	112	0%	81	0%
Oregon	502,907	258,928	239,195	205,030	742,102	3%	463,958	3%
California	77,401	32,413	17,318	14,844	94,719	0%	47,257	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,493,872	1,280,497	1,493,872	6%	1,280,497	9%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	2,403,171	1,371,825	0	0	2,403,171	10%	1,371,825	10%
Tribal	2,414,571	1,378,332	0	0	2,414,571	10%	1,378,332	10%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	417,071	255,850	0	0	417,071	2%	255,850	2%
Hatchery carcass	371,269	228,331	0	0	371,269	2%	228,331	2%
Total with hatchery surplus utilization					23,676,157	100%	13,808,075	100%
Total without hatchery surplus utilization					22,887,817		13,323,894	

Species: Summer/Winter Steelhead
Alternative: NMFS Cap (1970's-1990's Actual)

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	0	0	2,322	2,045	2,322	0%	2,045	0%
British Columbia	28,743	14,759	0	0	28,743	1%	14,759	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	2,322	2,045	2,322	0%	2,045	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	949,723	836,548	949,723	20%	836,548	19%
Tributary	0	0	2,849,170	3,002,550	2,849,170	61%	3,002,550	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	356,463	210,839	0	0	356,463	8%	210,839	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	374,877	230,308	0	0	374,877	8%	230,308	5%
Hatchery carcass	96,994	59,651	0	0	96,994	2%	59,651	1%
Total with hatchery surplus utilization					<u>4,660,614</u>	100%	<u>4,358,745</u>	100%
Total without hatchery surplus utilization					<u>4,188,744</u>		<u>4,068,786</u>	
Upper Columbia								
Alaska	0	0	245	216	245	0%	216	0%
British Columbia	3,038	1,560	0	0	3,038	1%	1,560	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	245	216	245	0%	216	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	100,387	88,425	100,387	20%	88,425	19%
Tributary	0	0	301,162	317,375	301,162	61%	317,375	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	37,679	22,286	0	0	37,679	8%	22,286	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	39,625	24,344	0	0	39,625	8%	24,344	5%
Hatchery carcass	10,252	6,305	0	0	10,252	2%	6,305	1%
Total with hatchery surplus utilization					<u>492,635</u>	100%	<u>460,727</u>	100%
Total without hatchery surplus utilization					<u>442,757</u>		<u>430,078</u>	
Middle Columbia								
Alaska	0	0	97	85	97	0%	85	0%
British Columbia	1,196	614	0	0	1,196	1%	614	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	97	85	97	0%	85	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	39,524	34,814	39,524	20%	34,814	19%
Tributary	0	0	118,573	124,956	118,573	61%	124,956	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	14,835	8,774	0	0	14,835	8%	8,774	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	15,601	9,585	0	0	15,601	8%	9,585	5%
Hatchery carcass	4,037	2,482	0	0	4,037	2%	2,482	1%
Total with hatchery surplus utilization					<u>193,958</u>	100%	<u>181,396</u>	100%
Total without hatchery surplus utilization					<u>174,321</u>		<u>169,329</u>	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	0	0	388	342	388	0%	342	0%
British Columbia	4,806	2,468	0	0	4,806	0%	2,468	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	388	342	388	0%	342	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,164,894	1,026,077	1,164,894	95%	1,026,077	97%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	36,693	22,542	0	0	36,693	3%	22,542	2%
Hatchery carcass	18,108	11,136	0	0	18,108	1%	11,136	1%
Total with hatchery surplus utilization					1,225,277	100%	1,062,908	100%
Total without hatchery surplus utilization					1,170,477		1,029,229	
<u>Willamette</u>								
Alaska	0	0	151	133	151	0%	133	0%
British Columbia	1,866	958	0	0	1,866	0%	958	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	151	133	151	0%	133	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	452,250	398,357	452,250	95%	398,357	97%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	14,245	8,752	0	0	14,245	3%	8,752	2%
Hatchery carcass	7,030	4,323	0	0	7,030	1%	4,323	1%
Total with hatchery surplus utilization					475,693	100%	412,656	100%
Total without hatchery surplus utilization					454,417		399,581	
<u>Total</u>								
Alaska	0	0	3,203	2,822	3,203	0%	2,822	0%
British Columbia	39,650	20,359	0	0	39,650	1%	20,359	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	3,203	2,822	3,203	0%	2,822	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,706,779	2,384,221	2,706,779	38%	2,384,221	37%
Tributary	0	0	3,268,905	3,444,881	3,268,905	46%	3,444,881	53%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	408,976	241,899	0	0	408,976	6%	241,899	4%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	481,041	295,531	0	0	481,041	7%	295,531	5%
Hatchery carcass	136,420	83,898	0	0	136,420	2%	83,898	1%
Total with hatchery surplus utilization					7,048,177	100%	6,476,431	100%
Total without hatchery surplus utilization					6,430,716		6,097,002	

Species: Summer/Winter Steelhead
Alternative: 80's Actual

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	<u>%</u>	Total economic <u>value</u>	<u>%</u>
Snake River								
Alaska	0	0	5,159	4,544	5,159	0%	4,544	0%
British Columbia	63,854	32,787	0	0	63,854	1%	32,787	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	5,159	4,544	5,159	0%	4,544	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,353,005	2,072,605	2,353,005	21%	2,072,605	19%
Tributary	0	0	7,059,014	7,439,024	7,059,014	62%	7,439,024	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	883,161	522,367	0	0	883,161	8%	522,367	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	928,783	570,604	0	0	928,783	8%	570,604	5%
Hatchery carcass	174,954	107,597	0	0	174,954	2%	107,597	1%
Total with hatchery surplus utilization					11,473,088	100%	10,754,071	100%
Total without hatchery surplus utilization					10,369,351		10,075,870	
Upper Columbia								
Alaska	0	0	545	480	545	0%	480	0%
British Columbia	6,750	3,466	0	0	6,750	1%	3,466	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	545	480	545	0%	480	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	248,717	219,078	248,717	21%	219,078	19%
Tributary	0	0	746,151	786,319	746,151	62%	786,319	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	93,352	55,215	0	0	93,352	8%	55,215	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	98,174	60,314	0	0	98,174	8%	60,314	5%
Hatchery carcass	18,493	11,373	0	0	18,493	2%	11,373	1%
Total with hatchery surplus utilization					1,212,728	100%	1,136,726	100%
Total without hatchery surplus utilization					1,096,060		1,065,039	
Middle Columbia								
Alaska	0	0	215	189	215	0%	189	0%
British Columbia	2,657	1,364	0	0	2,657	1%	1,364	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	215	189	215	0%	189	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	97,920	86,251	97,920	21%	86,251	19%
Tributary	0	0	293,759	309,573	293,759	62%	309,573	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	36,752	21,738	0	0	36,752	8%	21,738	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	38,651	23,745	0	0	38,651	8%	23,745	5%
Hatchery carcass	7,281	4,478	0	0	7,281	2%	4,478	1%
Total with hatchery surplus utilization					477,449	100%	447,528	100%
Total without hatchery surplus utilization					431,517		419,304	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	0	0	863	760	863	0%	760	0%
British Columbia	10,677	5,483	0	0	10,677	0%	5,483	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	863	760	863	0%	760	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,587,902	2,279,511	2,587,902	93%	2,279,511	95%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	137,685	84,588	0	0	137,685	5%	84,588	4%
Hatchery carcass	32,322	19,878	0	0	32,322	1%	19,878	1%
Total with hatchery surplus utilization					2,770,312	100%	2,390,979	100%
Total without hatchery surplus utilization					2,600,305		2,286,513	
<u>Willamette</u>								
Alaska	0	0	335	295	335	0%	295	0%
British Columbia	4,145	2,128	0	0	4,145	0%	2,128	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	335	295	335	0%	295	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,004,701	884,974	1,004,701	93%	884,974	95%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	53,453	32,839	0	0	53,453	5%	32,839	4%
Hatchery carcass	12,548	7,717	0	0	12,548	1%	7,717	1%
Total with hatchery surplus utilization					1,075,518	100%	928,249	100%
Total without hatchery surplus utilization					1,009,516		887,693	
<u>Total</u>								
Alaska	0	0	7,116	6,268	7,116	0%	6,268	0%
British Columbia	88,084	45,228	0	0	88,084	1%	45,228	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	7,116	6,268	7,116	0%	6,268	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	6,292,245	5,542,419	6,292,245	37%	5,542,419	35%
Tributary	0	0	8,098,924	8,534,916	8,098,924	48%	8,534,916	55%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	1,013,265	599,320	0	0	1,013,265	6%	599,320	4%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,256,747	772,090	0	0	1,256,747	7%	772,090	5%
Hatchery carcass	245,598	151,043	0	0	245,598	1%	151,043	1%
Total with hatchery surplus utilization					17,009,095	100%	15,657,552	100%
Total without hatchery surplus utilization					15,506,750		14,734,419	

Species: Summer/Winter Steelhead
Alternative: Run Doubling Objective

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
Snake River								
Alaska	0	0	10,318	9,088	10,318	0%	9,088	0%
British Columbia	127,708	65,574	0	0	127,708	1%	65,574	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	10,318	9,088	10,318	0%	9,088	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	4,087,542	3,600,443	4,087,542	19%	3,600,443	19%
Tributary	0	0	12,262,625	12,922,763	12,262,625	58%	12,922,763	67%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	2,301,286	1,361,151	0	0	2,301,286	11%	1,361,151	7%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,936,132	1,189,475	0	0	1,936,132	9%	1,189,475	6%
Hatchery carcass	316,734	194,791	0	0	316,734	2%	194,791	1%
Total with hatchery surplus utilization					21,052,662	100%	19,352,373	100%
Total without hatchery surplus utilization					18,799,795		17,968,107	
Upper Columbia								
Alaska	0	0	1,091	961	1,091	0%	961	0%
British Columbia	13,499	6,931	0	0	13,499	1%	6,931	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	1,091	961	1,091	0%	961	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	432,061	380,574	432,061	19%	380,574	19%
Tributary	0	0	1,296,183	1,365,961	1,296,183	58%	1,365,961	67%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	243,250	143,876	0	0	243,250	11%	143,876	7%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	204,653	125,730	0	0	204,653	9%	125,730	6%
Hatchery carcass	33,479	20,590	0	0	33,479	2%	20,590	1%
Total with hatchery surplus utilization					2,225,307	100%	2,045,583	100%
Total without hatchery surplus utilization					1,987,175		1,899,263	
Middle Columbia								
Alaska	0	0	429	378	429	0%	378	0%
British Columbia	5,315	2,729	0	0	5,315	1%	2,729	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	429	378	429	0%	378	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	170,102	149,832	170,102	19%	149,832	19%
Tributary	0	0	510,306	537,778	510,306	58%	537,778	67%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	95,767	56,644	0	0	95,767	11%	56,644	7%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	80,572	49,500	0	0	80,572	9%	49,500	6%
Hatchery carcass	13,181	8,106	0	0	13,181	2%	8,106	1%
Total with hatchery surplus utilization					876,102	100%	805,345	100%
Total without hatchery surplus utilization					782,349		747,739	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	0	0	1,725	1,520	1,725	0%	1,520	0%
British Columbia	21,355	10,965	0	0	21,355	0%	10,965	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	1,725	1,520	1,725	0%	1,520	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	5,175,805	4,559,022	5,175,805	93%	4,559,022	95%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	321,351	197,424	0	0	321,351	6%	197,424	4%
Hatchery carcass	58,172	35,776	0	0	58,172	1%	35,776	1%
Total with hatchery surplus utilization					5,580,134	100%	4,806,226	100%
Total without hatchery surplus utilization					5,200,611		4,573,026	
<u>Willamette</u>								
Alaska	0	0	670	590	670	0%	590	0%
British Columbia	8,291	4,257	0	0	8,291	0%	4,257	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	670	590	670	0%	590	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	2,009,402	1,769,948	2,009,402	93%	1,769,948	95%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	124,758	76,646	0	0	124,758	6%	76,646	4%
Hatchery carcass	22,584	13,889	0	0	22,584	1%	13,889	1%
Total with hatchery surplus utilization					2,166,374	100%	1,865,920	100%
Total without hatchery surplus utilization					2,019,032		1,775,385	
<u>Total</u>								
Alaska	0	0	14,233	12,537	14,233	0%	12,537	0%
British Columbia	176,168	90,456	0	0	176,168	1%	90,456	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	14,233	12,537	14,233	0%	12,537	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	11,874,912	10,459,818	11,874,912	37%	10,459,818	36%
Tributary	0	0	14,069,114	14,826,501	14,069,114	44%	14,826,501	51%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	2,640,304	1,561,672	0	0	2,640,304	8%	1,561,672	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	2,667,466	1,638,774	0	0	2,667,466	8%	1,638,774	6%
Hatchery carcass	444,151	273,153	0	0	444,151	1%	273,153	1%
Total with hatchery surplus utilization					31,900,579	100%	28,875,447	100%
Total without hatchery surplus utilization					28,788,962		26,963,520	

Species: Summer/Winter Steelhead
Alternative: Early 90's

	Total state level average economic impact	Total economic value	Total recreational economic impact	Total recreational value	Total economic impact	%	Total economic value	%
Snake River								
Alaska	0	0	1,460	1,286	1,460	0%	1,286	0%
British Columbia	18,067	9,277	0	0	18,067	1%	9,277	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	1,460	1,286	1,460	0%	1,286	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	546,924	481,749	546,924	20%	481,749	19%
Tributary	0	0	1,640,773	1,729,102	1,640,773	61%	1,729,102	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	205,279	121,417	0	0	205,279	8%	121,417	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	215,883	132,629	0	0	215,883	8%	132,629	5%
Hatchery carcass	69,308	42,625	0	0	69,308	3%	42,625	2%
Total with hatchery surplus utilization					<u>2,699,154</u>	100%	<u>2,519,370</u>	100%
Total without hatchery surplus utilization					2,413,963		2,344,116	
Upper Columbia								
Alaska	0	0	154	136	154	0%	136	0%
British Columbia	1,910	981	0	0	1,910	1%	981	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	154	136	154	0%	136	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	57,811	50,922	57,811	20%	50,922	19%
Tributary	0	0	173,433	182,769	173,433	61%	182,769	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	21,698	12,834	0	0	21,698	8%	12,834	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	22,819	14,019	0	0	22,819	8%	14,019	5%
Hatchery carcass	7,326	4,505	0	0	7,326	3%	4,505	2%
Total with hatchery surplus utilization					<u>285,305</u>	100%	<u>266,302</u>	100%
Total without hatchery surplus utilization					255,160		247,777	
Middle Columbia								
Alaska	0	0	61	54	61	0%	54	0%
British Columbia	752	386	0	0	752	1%	386	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	61	54	61	0%	54	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	22,761	20,049	22,761	20%	20,049	19%
Tributary	0	0	68,283	71,959	68,283	61%	71,959	69%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	8,543	5,053	0	0	8,543	8%	5,053	5%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	8,984	5,520	0	0	8,984	8%	5,520	5%
Hatchery carcass	2,884	1,774	0	0	2,884	3%	1,774	2%
Total with hatchery surplus utilization					<u>112,329</u>	100%	<u>104,847</u>	100%
Total without hatchery surplus utilization					100,461		97,554	

	Total state level average economic <u>impact</u>	Total economic <u>value</u>	Total recreational economic <u>impact</u>	Total recreational <u>value</u>	Total economic <u>impact</u>	%	Total economic <u>value</u>	%
<u>Lower Columbia</u>								
Alaska	0	0	171	150	171	0%	150	0%
British Columbia	2,115	1,086	0	0	2,115	1%	1,086	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	171	150	171	0%	150	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	398,653	351,146	398,653	96%	351,146	97%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	2,657	1,632	0	0	2,657	1%	1,632	0%
Hatchery carcass	11,764	7,235	0	0	11,764	3%	7,235	2%
Total with hatchery surplus utilization					415,530	100%	361,401	100%
Total without hatchery surplus utilization					401,109		352,533	
<u>Willamette</u>								
Alaska	0	0	65	57	65	0%	57	0%
British Columbia	802	412	0	0	802	1%	412	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	65	57	65	0%	57	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	151,170	133,156	151,170	96%	133,156	97%
Tributary	0	0	0	0	0	0%	0	0%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	0	0	0	0	0	0%	0	0%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	1,008	619	0	0	1,008	1%	619	0%
Hatchery carcass	4,461	2,743	0	0	4,461	3%	2,743	2%
Total with hatchery surplus utilization					157,570	100%	137,044	100%
Total without hatchery surplus utilization					152,101		133,681	
<u>Total</u>								
Alaska	0	0	1,910	1,683	1,910	0%	1,683	0%
British Columbia	23,645	12,141	0	0	23,645	1%	12,141	0%
Washington ocean	0	0	0	0	0	0%	0	0%
Washington Puget Sound	0	0	0	0	0	0%	0	0%
Oregon	0	0	1,910	1,683	1,910	0%	1,683	0%
California	0	0	0	0	0	0%	0	0%
Columbia Basin inland								
Freshwater sport								
Mainstem	0	0	1,177,319	1,037,022	1,177,319	32%	1,037,022	31%
Tributary	0	0	1,882,489	1,983,830	1,882,489	51%	1,983,830	59%
Gillnet	0	0	0	0	0	0%	0	0%
Tribal	235,520	139,304	0	0	235,520	6%	139,304	4%
Other	0	0	0	0	0	0%	0	0%
Hatchery								
Hatchery surplus market	251,351	154,419	0	0	251,351	7%	154,419	5%
Hatchery carcass	95,744	58,882	0	0	95,744	3%	58,882	2%
Total with hatchery surplus utilization					3,669,889	100%	3,388,964	100%
Total without hatchery surplus utilization					3,322,794		3,175,662	