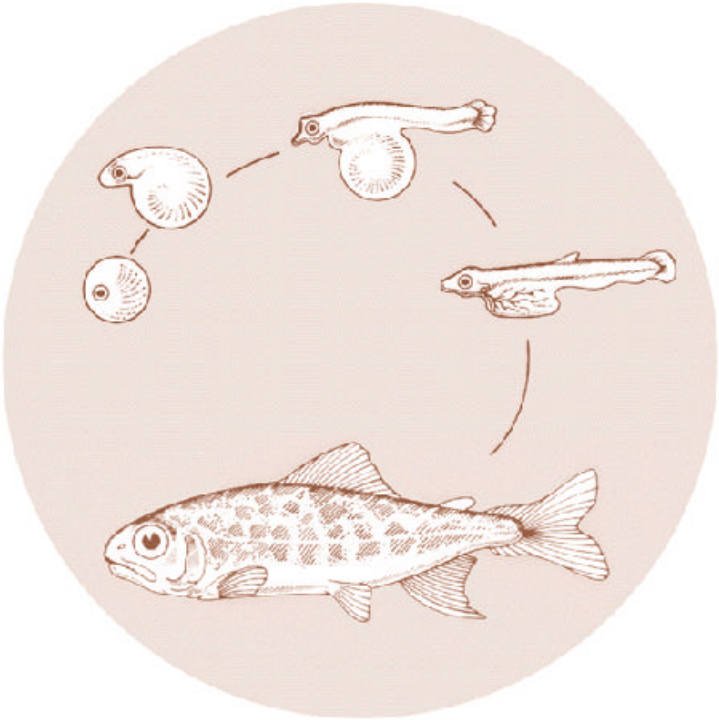
November 1994

ANNUAL CODED WIRE TAG PROGRAM OREGON MISSING PRODUCTION GROUPS

Annual Report 1994



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ANNUAL CODED WIRE PROGRAM
OREGON MISSING PRODUCTION GROUPS

Annual Report
1994

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ABSTRACT

This annual report is in fulfillment of contract obligations with Bonneville Power Administration which is the funding source for the Oregon Department of Fish and Wildlife's Annual Coded Wire Tag Program - Oregon Missing Production Groups Project.

Tule brood fall chinook were caught primarily in the British Columbia, Washington and northern Oregon ocean commercial fisheries. The up-river bright fall chinook contributed primarily to the Alaska and British Columbia ocean commercial fisheries and the Columbia River gillnet fishery. Contribution of Rogue fall chinook released in the lower Columbia River system occurred primarily in the Oregon ocean commercial and Columbia river gillnet fisheries

Willamette spring chinook salmon contributed primarily to the Alaska and British Columbia ocean commercial, Oregon freshwater sport and Columbia River gillnet fisheries. The up-river stocks of spring chinook contributed primarily to the Columbia River sport and gillnet fisheries.

The up-river stocks of Columbia River summer steelhead contributed primarily to the Columbia River gillnet and in-river freshwater sport fisheries.

The Columbia River early stock coho contributed well to the Oregon ocean sport and commercial fisheries. The 1986 to 1990 brood years of coho released in the Umatilla River survived at an average rate of 1.82% and contributed primarily to the Washington, Oregon and California ocean sport and commercial fisheries and the Columbia River gillnet fishery. The 198'6 to 1990 brood years of coho released in the Yakima River survived at an average rate' of 0.94% and contributed primarily to-the Washington, Oregon and California ocean sport and commercial fisheries and the Columbia River gillnet fishery.

Survival rates of salmon and steelhead are influenced, not only by factors in the hatchery, disease, density, diet and size and time of release, but also by environmental factors in the river and ocean. These environmental factors are controlled by large scale weather patterns such as El Nino over which man has no influence. Changes in rearing conditions in the hatchery over which man has some limited influence do impact the survival rates, but these impacts are insignificant in comparison to the impacts caused by the weather, river and ocean environmental factors over which-man has little or no influence. Man could have some influence over river flow conditions, but political and economic pressures generally out weigh the biological needs of the fish.

Brood years of salmon and steelhead that were in the ocean during the 1983 El Nino event exhibited poor survival all along the Pacific coast of California, Oregon and Washington. However, stocks of chinook and coho that entered the ocean in the fall of 1984 following the El Nino experienced rema'rkably improved survival rates. In some instance, tule fall chinook experienced survival rates almost ten time higher than for the previous brood years of the same stock. Coho salmon released in the Columbia River in "normal" years generally experienced better survival rates when released later in the spring. However, during years of El Nino, ocean conditions,, coho released late survived very poorly and coho released earlier in the spring survived better.

INTRODUCTION

The Columbia Basin Fish and Wildlife Program Section 203 (a) proposes an interim goal of doubling runs of salmon and steelhead in the Columbia Basin. Doubling means increasing the current run size of 2.5 million to 5 million adult fish. As part of this effort Section 206 (c) states an objective of exploring methods for substantially increasing and improving hatchery production at existing hatcheries. Section 206 (e)(l) states Bonneville shall fund collection of Columbia Basin hatchery data for anadromous fish. These data will include at a minimum: number of returning adults; disposition of returning adults; source and description of brood stock; actions to maintain genetic diversity; and size, location and time of release of juvenile fish.

A system of monitoring and evaluation is necessary to measure present and future levels of fish production by various hatchery and natural fish production components if we are going to be able to evaluate the success of this program in attaining the goal of doubling the size of fish runs.

In September 1989 the Oregon Department of Fish and Wildlife received a grant from the Bonneville Power Administration to begin a project of annually coded-wire-tagging missing production groups of anadromous salmonids not currently tagged. Some groups of production fish were already being tagged-by other programs, so this contract consisted of filling in the missing production groups for the future data base. This project began in 1990 coded-wire tagging groups of juvenile anadromous salmon produced at Oregon hatcheries,

Tagging will enable evaluation of survival and contribution rates. As the fish mature and are captured in various fisheries or return to release/recapture facilities, they are sampled to recover coded-wire tags. All recoveries of coded-wire tagged fish are reported to the Pacific States Marine Fisheries Commission. Release and recovery information is stored along with sampling and mark/unmarked release ratios. This information is then used to estimate survival rates for each production lot of fish reared and released at each hatchery. The number and

rate that each hatchery production group of fish contribute to the various fisheries is then estimated by recovery area and brood year. This information is then used to evaluate, effectiveness of each hatchery and various rearing and release practices conducted by the hatcheries. Evaluation of the various hatchery and natural production projects will be needed to measure the effectiveness of any mitigation program and to help direct future efforts in maintaining or enhancing fish runs in the Columbia Basin. This information will also be valuable to salmon harvest managers in developing scenarios that will allow harvest of excess hatchery fish while protecting threatened and endangered natural stocks.

Methods and Materials

The goal of this program is to develop the ability to estimate hatchery production survival values and evaluate effectiveness of Oregon hatcheries. To accomplish this goal, work has progressed under three objectives.

Objective 1. Implement the project by tagging missing production groups within hatcheries to assure each production group is identifiable to allow future evaluation upon recovery of tag data.

Objective 2. Recover coded-wire tags from snouts of fish tagged under Objective 1.

Objective 3. Prepare an annual report for all Oregon fish hatcheries in the Columbia Basin in a Propagation Evaluation Format. The annual report will include a Propagation Evaluation Summary format for each tag code released by an ODFW hatchery in the Columbia Basin. The hatchery summary will include estimates of survival and contribution for each hatchery represented by a coded-wire tag release group. The information will be obtained from the latest information available on the Pacific States Marine Fish Commission's computer data base at the time of report preparation.

RESULTS

Objective. 1. We completed coded-wire tagging and ad-clipping a total of about 1.4 million juvenile 1992 and 1993 brood spring and fall chinook and coho salmon (Table 1). Of this total, the USFW Service tagged 50,413 coho for us at their Eagle Creek Hatchery. The total represents, 26 different tag groups. ODFW's estimated total operational costs (without administrative overhead) averaged between $70 and $112 per thousand fish tagged.

Table 1. Fish Tagged and Respective Estimated Operational Costs. -(August. 1, 1993 to July 31, 1994)

Act #	Period	Location	Brood	Sp.	CWT'd	Grps	$/K	Tot. $
05	Oct, 93	McKenzie	92	CHS	588,539	6	$101	59,240
06*	Aug, 93	Clackamas@SS	92	CHS	27,173	1	$112	3031
07	Nov, 93	Sandy	92	Co	105,529	3	$72	7,643
08	Sept, 93	Cascade	92	Co	165,321	6	$70	11,504
09*	Oct, 93	Eagle Creek	92	Co	50,413	2	-	-
10	June, 94	Bonneville	93	CHS	53,340	1	$72	3,784
01	Apr, 94	Big Creek	93	CHF	106,536	2	$87	9,228
02*	Mar, 94	Bonneville	93	CHF	53,371	1	$81	4,307
02*	July, 94	SS@Willamette	93	CHS	50,061	1	$83	4,171
03	Apr, 94	Stayton	93	CHF	55,801	1	$82	4,561
04	May, 94	Clackamas@Ox	93	CHS	107,310	2	$81	8,734
		TOTALS			1,363,394	26		

*Act#06 ODFW cost center 08423600/322003

*Act#09 Coordinated tagging with USFW Services

*Act#02 Modified because of a single release time at Bonneville and the need to ID S. Santriam CHS raised at Willamette hatchery.

Objective 2. We completed processing a total of 16,951 tags at the laboratory in Clackamas. The total consisted of fish from sport, commercial, ceremonial, hatchery, spawning ground surveys, and miscellaneous other fisheries (Table 2). We verified 3,336 ODFW tags recovered and returned to us by other agencies.

Table 2. CWT's Recovered at Clackamas. (Sept. 93 to August 94)

FISHERY	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
River Sport	64	16	66	113	97	4	94	191	232	12	9	52	950
Test Fishery	50	0	0	0	0	0	0	0	24	0	0	0	74
Estuary Sport	161	4	0	0	0	3	0	0	0	0	0	0	164
Treaty Gillnet	849	632	10	0	0	0	47	0	0	0	0	0	1,538
Non-Treaty Gillnet	108	534	0	0	0	1	134	0	0	0	0	0	777
Youngs Bay Gillnet	392	141	41	0	0	0	0	0	28	0	0	7	609
Ocean Sport/Troll	1,013	0	112	107	0	6	0	0	0	0	141	0	1,379
Hatchery Returns	66	2,091	2,638	539	2,263	1,003	516	0	0	279	382	120	9,897
Spawning Ground	0	109	318	6	50	293	15	0	0	0	0	0	381
Smolt Recoveries	0	0	0	0	0	0	0	0	32	0	519	0	551
Ceremonial/Subistence	0	46	0	0	0	0	0	0	104	24	14	0	188
TOTAL	2,703	3,569	3,185	765	2,410	1,310	806	191	420	332	1,079	181	16,951
Verifications	156	6	632	71	587	0	0	34	0	0	1,070	780	3,336

Objective 3. We prepared summaries of available coded-wire tag recovery information' for all groups of tagged fish released from Oregon Department of Fish and Wildlife hatcheries in the Columbia basin and supplied them in the Propagation Evaluation Format to the Bonneville Power Administration Program Manager. Summaries of the coded-wire tag recovery and survival information are presented in Appendix Table 1. Charts depicting the latest five year average distribution of catch and estimated survival rates for each stock and hatchery are presented in Figures 1 - 52.

Discussion

The average percent recovery (by fishery) for the last 5 completed brood years (chinook 1984 to 1988 broods; coho 1986 to 1990 broods; steelhead 1985 to 1989 broods) are presented in Appendix Table 1.

Big Creek Hatchery

Big Creek Hatchery is located 2 miles south of Knappa off Highway 30 near the mouth of the Columbia River. The hatchery was originally built in 1939-41 and was operated by the Oregon Fish commission. Big Creek Hatchery rears and releases tule and Rogue fall chinook, coho salmon, and winter steelhead.

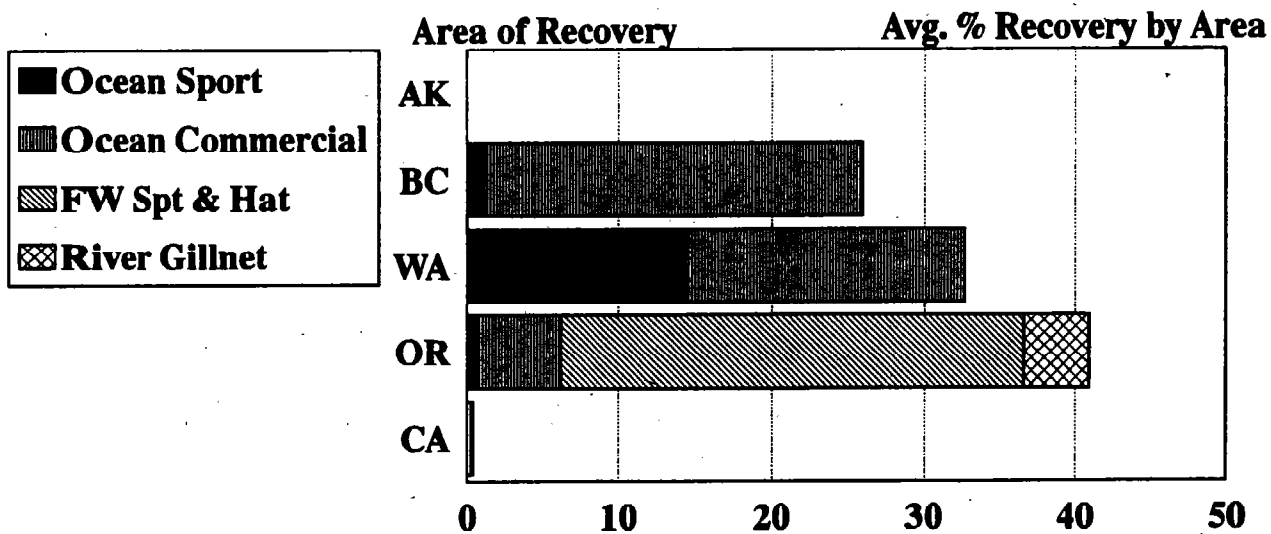
Tule 1986 to 1988 brood fall chinook survived at a rate of 0.13%. They 'were caught primarily in the British Columbia, Washington and northern Oregon ocean commercial and Oregon freshwater fisheries (Figure 1).

Rogue fall chinook-were originally released at Big Creek as an experiment begining with the 1982 brood. Good survival and' contribution rates to Oregon have caused this program to be expanded beyond the pilot production level. The 1993 return of 1,163 Rogue fall chinook to Big Creek provided an estimated 1,358,181 eggs. Preliminary returns during 1994 project an , estimated egg take of over 2.9 million eggs. Eggs in excess to the needs of maintaining the broodstock at Big Creek Hatchery will be reared for acclimation in the Young's Bay net pens (operated by the Clatsup Economic Development Commission) and released to enhance the development of a very popular terminal gillnet fishery. Rogue fall chinook from the 1984 to 1988 broods averaged survival at a rate of 2.33%. The largest contribution occurred in the Oregon ocean commercial and river freshwater and gillnet fisheries (Figure 2).

The 1986 to 1990 brood Big Creek coho survived at an average rate of 3.55%. They contributed well to the Oregon ocean sport and commercial fisheries (Figure 3).

Big Creek Tule Fall Chinook Released in Big Creek

1986 - 1988 Brood Year



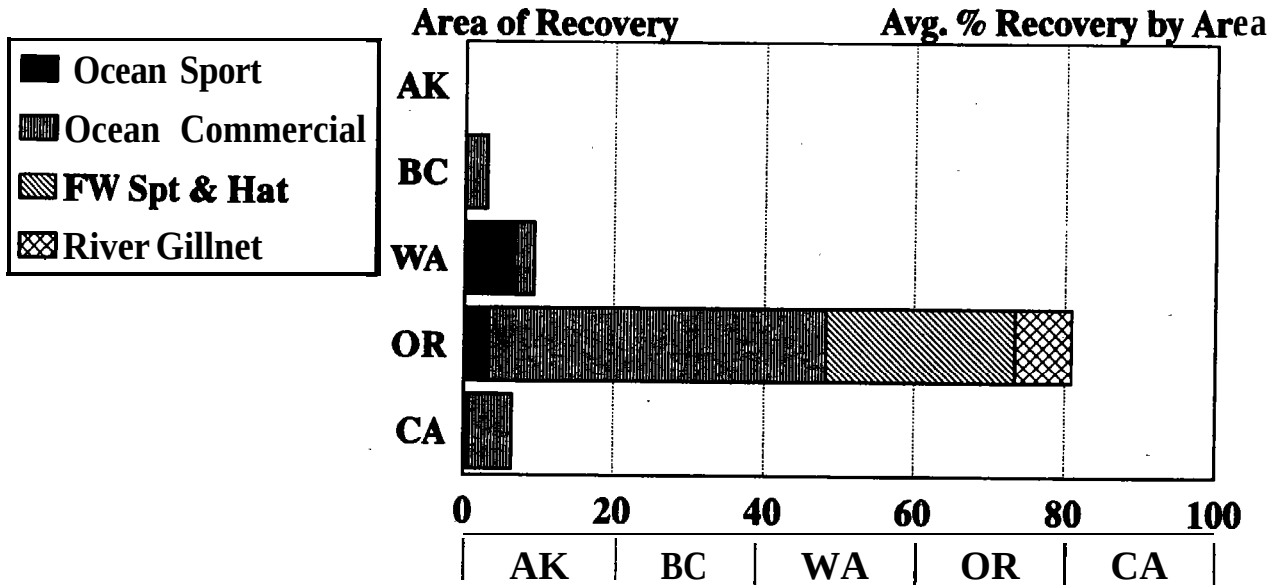
	AK	BC	WA	OR	CA
Ocean Sport		1.1	14.4	0.8	0
Ocean Commercial		24.9	18.3	5.4	0.4
FW Spt & Hat				30.4	
River Gillnet				4.3	

Avg. .13 % Survival

Figure 1.

Rogue Fall Chinook
Released in Big Creek

1984 - 1988 Brood Year

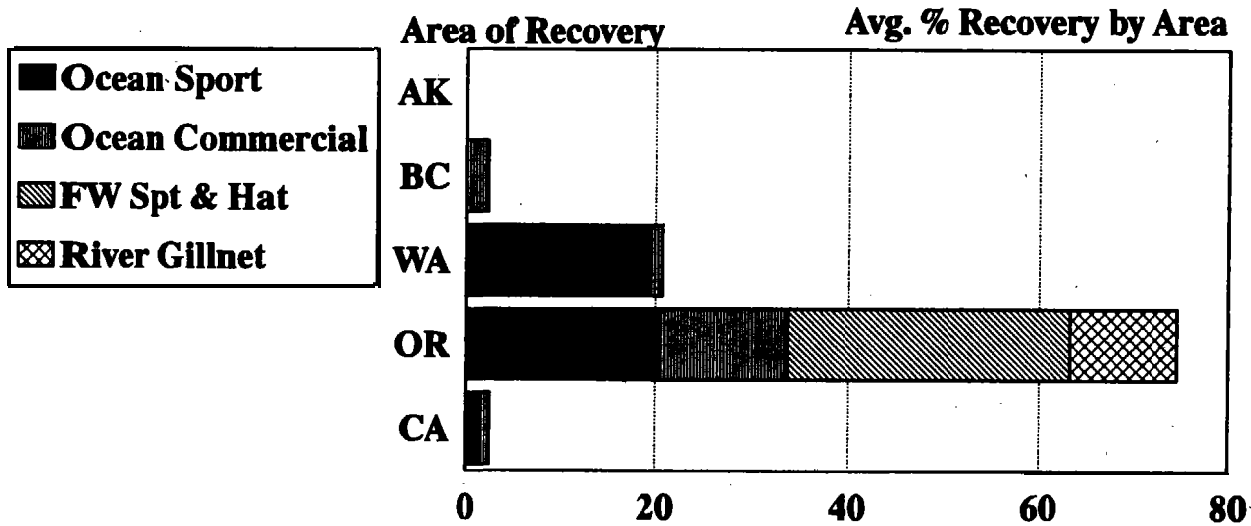


	AK	BC	WA	OR	CA
Ocean Spurt		0.2	6.8	3.5	0.8
Ocean Commercial		2.9	2.7	44.7	5.8
FW Spt & Hat				25.2	
River Gillnet				7.5	

Avg. 2.33 % Survival

Figure 2.

Big Creek Coho
Released in Big Creek
1986 - 1990 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	19.6	20.6	1.6
Ocean Commercial	0	2.3	1.1	13	0.9
FW Spt & Hat				29.7	
River Gillnet				11.2	

Avg. 2.55 % Survival

Figure 3.

Only small experimental groups of chum salmon were previously reared at Big Creek and none of these fish have been coded-wire tagged for evaluation.

Winter steelhead are reared at Big Creek but none have been marked with coded-wire tags for evaluation.

Klaskanine Hatchery

Klaskanine Hatchery is located 21 miles southeast of Astoria on Highway 202 on the Klaskani'ne River. The hatchery originally built in 1913 was expanded and remodeled in 1953. Klaskanine Hatchery presently raises tule fall chinook, coho salmon and winter steelhead trout.

The 1986 to 1988 brood of tule fall chinook released from Klaskanine Hatchery survived at a rate of 0.08 %. They contributed primarily to the British Columbia, Washington, and Oregon ocean commercial and the Columbia River and Youngs Bay gillnet fisheries (Figure 4).

The 1986 to 1990 brood Klaskanine coho produced an average survival at a rate of 2.73 8. They contributed primarily to the Oregon ocean sport, commercial and the Columbia River and Youngs Bay gillnet fisheries (Figure 5).

Winter steelhead are reared at Klaskanine Hatchery but none have been marked with coded-wire tags for evaluation.

Clatsop Economic Development Commission (CEDC)

CEDC operates a series of freshwater ponds and saltwater net pens in Youngs Bay near Astoria. CEDC releases coho and chinook salmon.

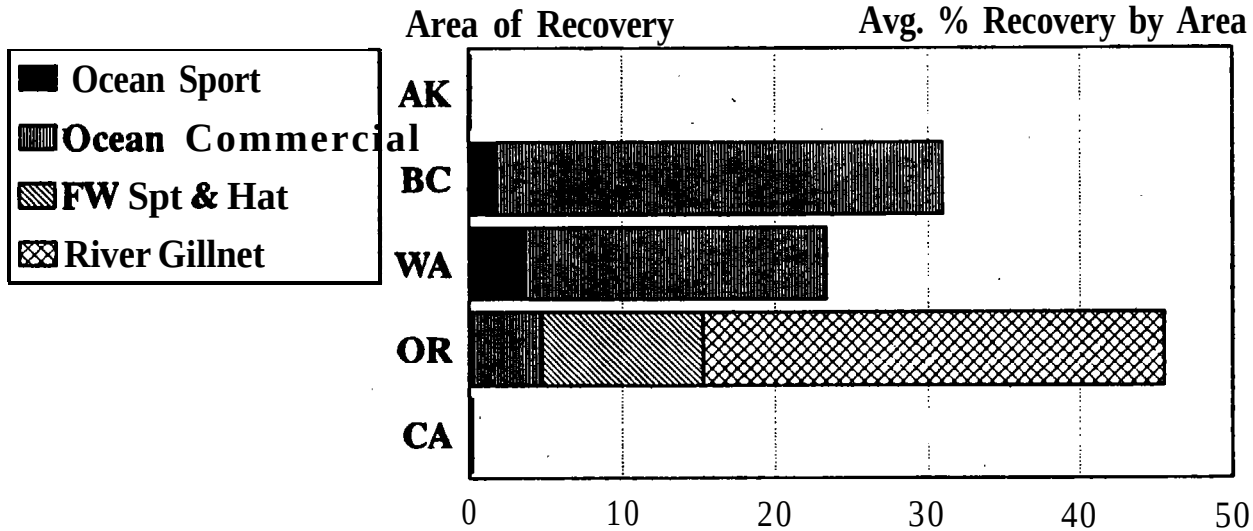
The 1984 to 1987 broods tule fall chinook released in the South Fork Klaskanine River averaged a survival rate of 0.48 %. They were caught primarily in the British Columbia ocean commercial and the lower Columbia River and Youngs Bay gillnet fisheries (Figure 6).

The 1984 to 1987 brood Rogue fall chinook reared by CEDC in net pens and released in the Klaskanine River averaged a survival rate of 2.93 %. They were caught primarily in the Oregon commercial troll and Youngs Bay gillnet fisheries (Figure 7).

The 1986 Big Creek coho stock reared by CEDC and released in Tucker Creek survived at a rate of 3.12 %. They were harvested primarily in the Oregon ocean commercial and sport fisheries and the lower Columbia and Youngs Bay gillnet fisheries (Figure 8).

Klaskanine Hat. (Big Creek Stk) Tule Fall Chinook Released in Klaskanine R

1986 - 1988 Brood Year



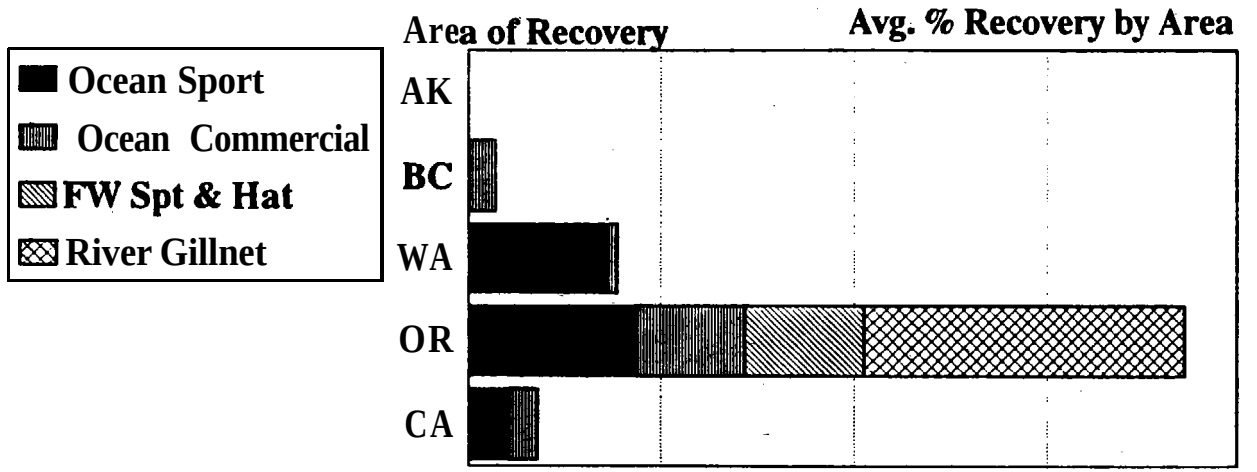
	AK	BC	WA	OR	CA
Ocean Sport		1.8	3.7	0.1	0.1
Ocean Commercial	0.1	29.2	19.7	4.6	0.1
FW Spt & Hat				10.6	
River Gillnet				30.2	

Avg. 0.08 % Survival

Figure 4.

Klaskanine Coho
Released in Klaskanine R

1986 - 1990 Brood Year



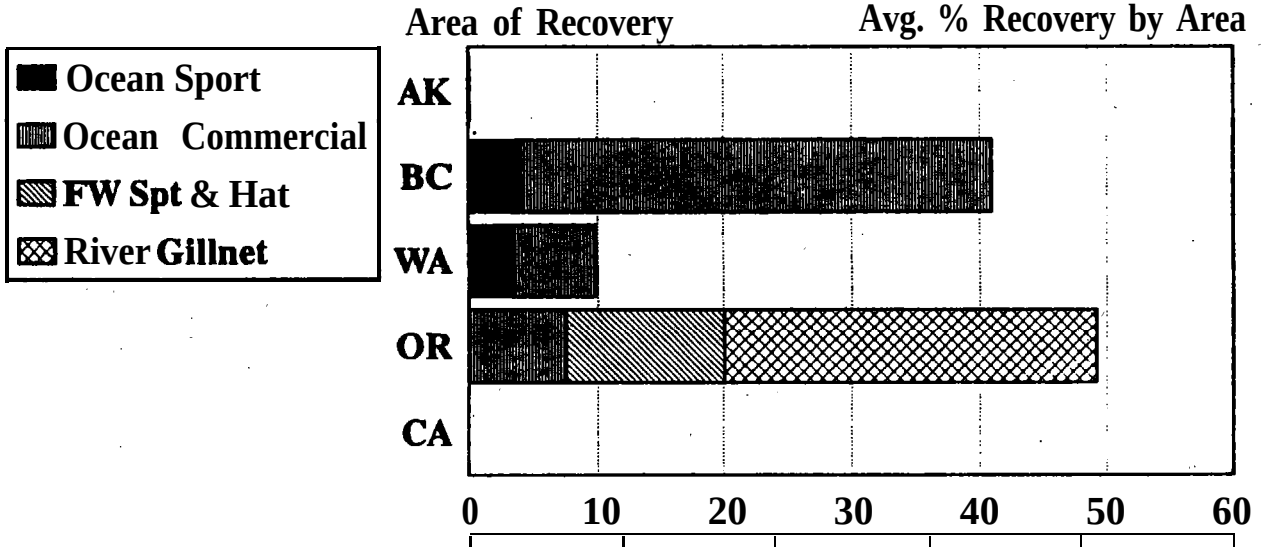
	AK	BC	WA	OR	CA
Ocean Sport	0	0.1	14.6	17.6	4.3
Ocean Commercial	0	2.7	0.9	11.1	2.9
FW Spt & Hat				12.4	
River Gillnet				33.4	

Avg. 2.73 % Survival

Figure 5.

S.F. Klaskanine Pond Tule Fall Chinook Released in S. F. Klaskanine R.

1984 - 1987 Brood Year



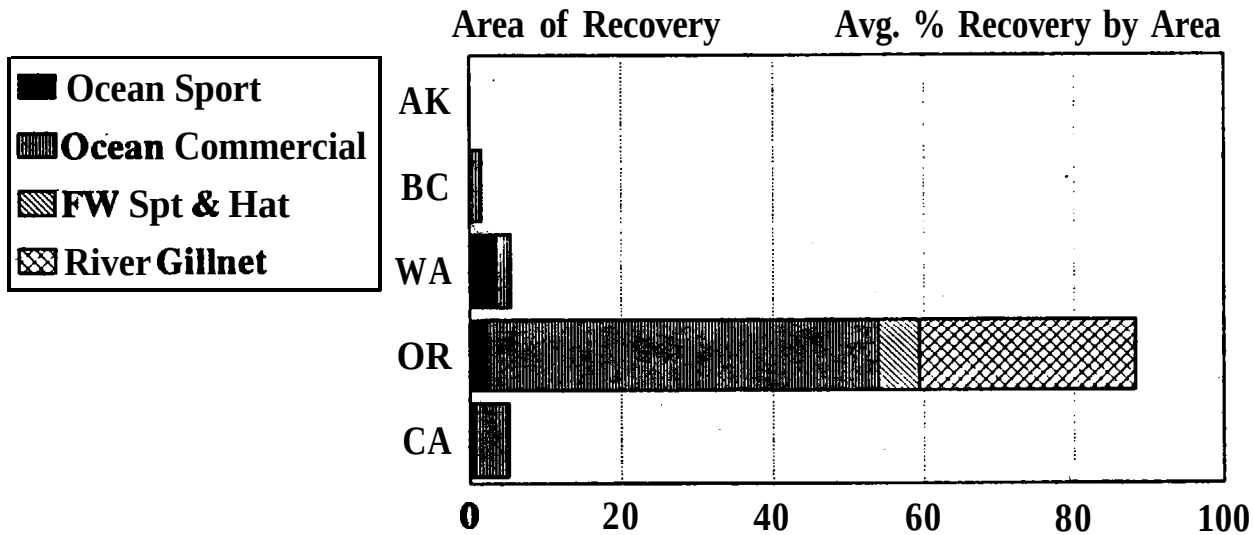
	AK'	BC	WA	OR	CA
Ocean Sport		4.1	3.4	0.1	0
Ocean Commercial	0.1	36.9	6.5	7.5	0
FW Spt.& Hat				12.5	
River Gillnet				29.1	

Avg. 0.48 % Survival

Figure 6.

Rogue Fall Chinook (S.F. Klaskanine Hat) Released in Klaskanine R

1984 - 1987 Brood Year



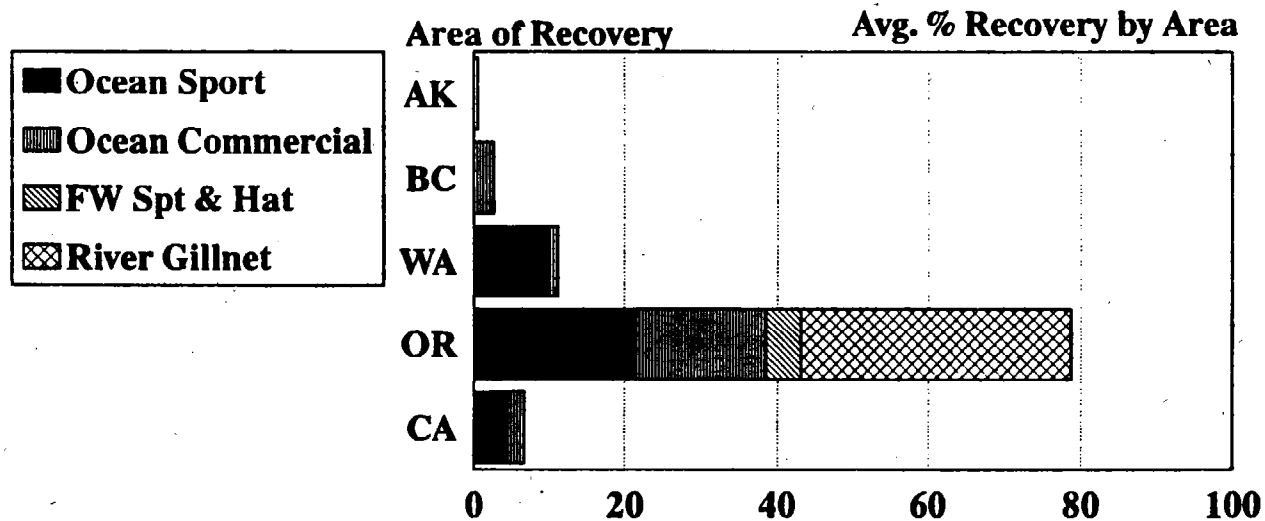
	AK	BC	WA	OR	CA
Ocean Sport			3.6	2.3	0.8
Ocean Commercial		1.6	1.8	51.8	4.3
FW Spt & Hat				5.4	
River Gillnet				28.6	

Avg. 2.93 % Survival

Figure 7.

SF Klaskanine Pond (Big Creek Stock) Coho Released in Tucker Creek

1986 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	10.1	21.5	4.5
Ocean Commercial	0.6	2.7	1.1	17	2.2
FW Spt & Hat				4.7	
River Gillnet				35.6	

Avg. 3.12 % Survival

Figure 8.

The 1987 brood Sandy River coho stock acclimated in the CEDC freshwater ponds and released in Youngs River survived at an average rate of 2.97 % (Figure 9).

The 1987 to 1990 brood South Fork Klaskanine coho released in Klaskanine River South Fork survived at an average rate of 4.11 % (Figure 10).

The 1990 brood Klaskanine coho stock acclimated in the CEDC salt water net pens and released in the South Fork Klaskanine River (Youngs Bay) survived at a rate of 3.48 % (Figure 11).

The 1990 brood Sandy coho stock acclimated in the Youngs Bay saltwater net pens and released in the South Fork Klaskanine River (Youngs Bay) survived at a rate of 0.03 % (Figure 12).

The 1990 brood Big Creek coho stock acclimated in the Youngs Bay saltwater net pens and released in the South Fork Klaskanine River (Youngs Bay) survived at a rate of 1.13 % (Figure 13).

The 1990 brood Kalama coho stock acclimated in the Youngs Bay saltwater net pens and released in the South Fork Klaskanine River (Youngs Bay) survived at a rate of 0.13 % (Figure 14) This is a north migrating stock and contributed more to British Columbia and Washington and less to California than the 1990 brood south migrating stocks (Klaskanine, Sandy and Big Creek).

The 1988 brood Willamette stock spring chinook reared in the south Fork Klaskanine Hatchery and released in the South Fork Klaskanine River survived at a rate of >O.Ol % (Figure 15).

The 1988 brood Willaamette stock spring chinook reared in the south Fork Klaskanine Hatchery and released in the Youngs River survived at a rate of 0.43(Figure 16).

Gnat Creek Hatchery

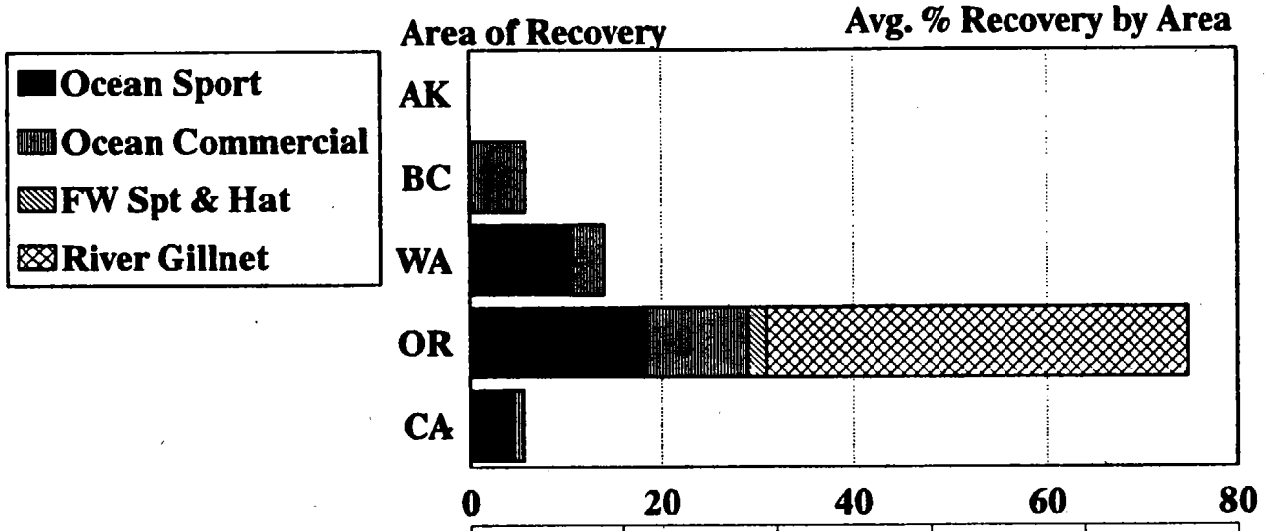
Gnat Creek Hatchery is located east of Knappa off Highway 30 on Gnat Creek a tributary to the Lower Columbia River. Gnat Creek Hatchery releases summer and winter steelhead and cutthroat trout. None of these groups of fish have been coded-wire tagged for evaluation.

Eagle Creek National Fish Hatchery

Eagle Creek National Fish Hatchery is located on Eagle Creek a tributary of the Clackamas River southeast of Portland. Eagle Creek Hatchery presently rears and releases coho salmon in Eagle Creek. Additional coho are reared for ODFW and are transported to the CEDC net pens for acclimation in Youngs Bay near Astoria.

SF Klaskanine Pond (Sandy R. Stock) Coho Released in Youngs River

1987 Brood Year



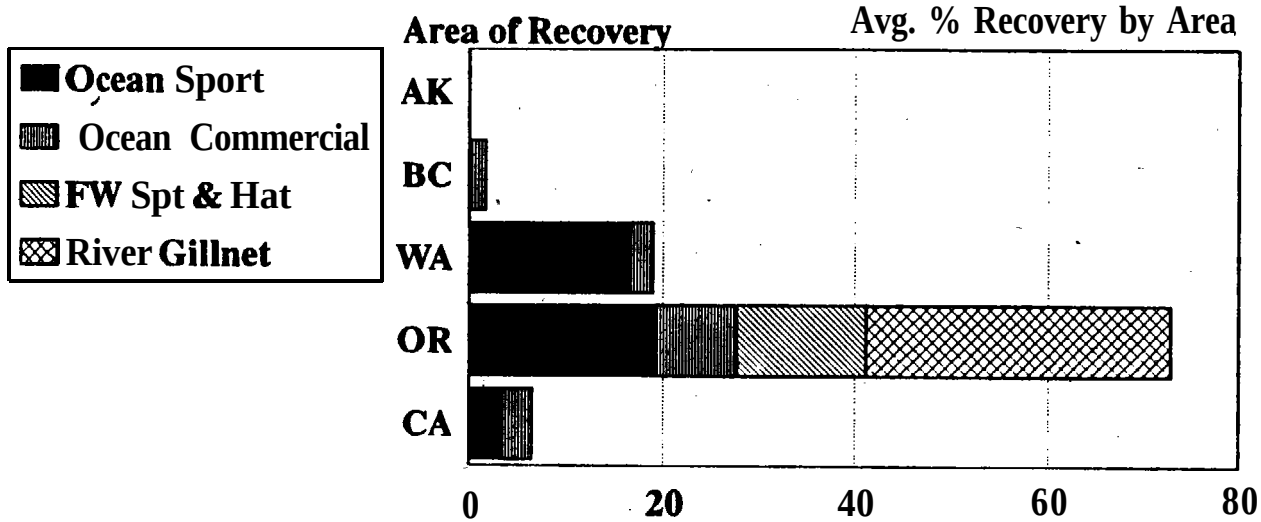
	AK	BC	WA	OR	CA
Ocean Sport	0	0.2	10.5	18.5	4.6
Ocean Commercial	0	5.5	3.5	10.6	0.9
FW Spt & Hat				1.9	
River Gillnet				43.8	

Avg. 2.97 % Survival

Figure 9.

SF Klaskanine Pond Coho
Released in Klaskanine R . S. Fork

1987 to 1990 Brood Year



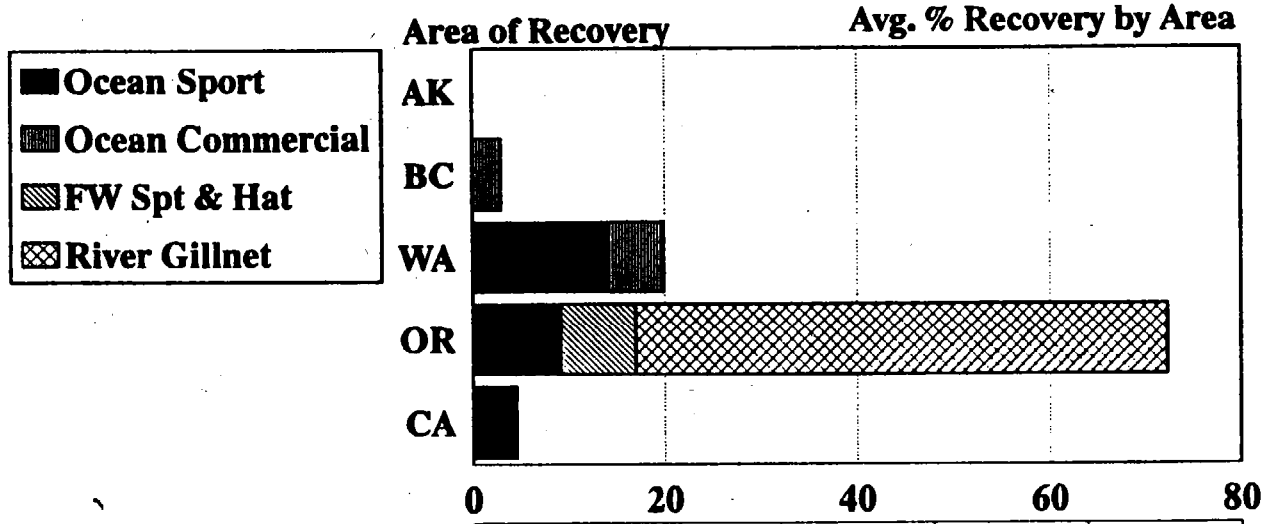
	AK	BC	WA	OR	CA
Ocean Sport	0	0.2	16.7	19.4	3.5
Ocean Commercial	0	1.5	23	8.3	3
FW Spt & Hat				13.5	
River Gillnet				31.7	

Avg. 4.11% Survival

Figure 10.

SF Klaskanine Pond (Klaskanine Stock) Coho Released in Youngs Bay

1990 Brood Year



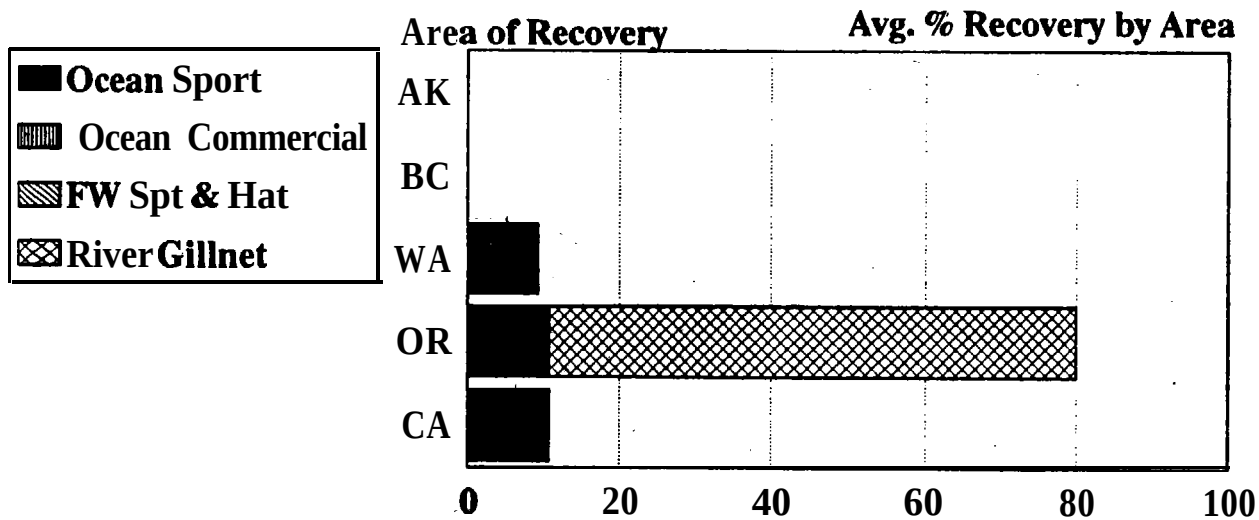
	AK	BC	WA	OR	CA
Ocean Sport	0	0.1	14.2	9.2	4.6
Ocean Commercial	0	2.9	5.7	0	0
FW Spt & Hat				7.8	
River Gillnet				55.4	

Avg. 3.48 % Survival

Figure 11.

SF Klaskanine Pond (Sandy R. Stock) Coho Released in Youngs Bay

1990 Brood Year



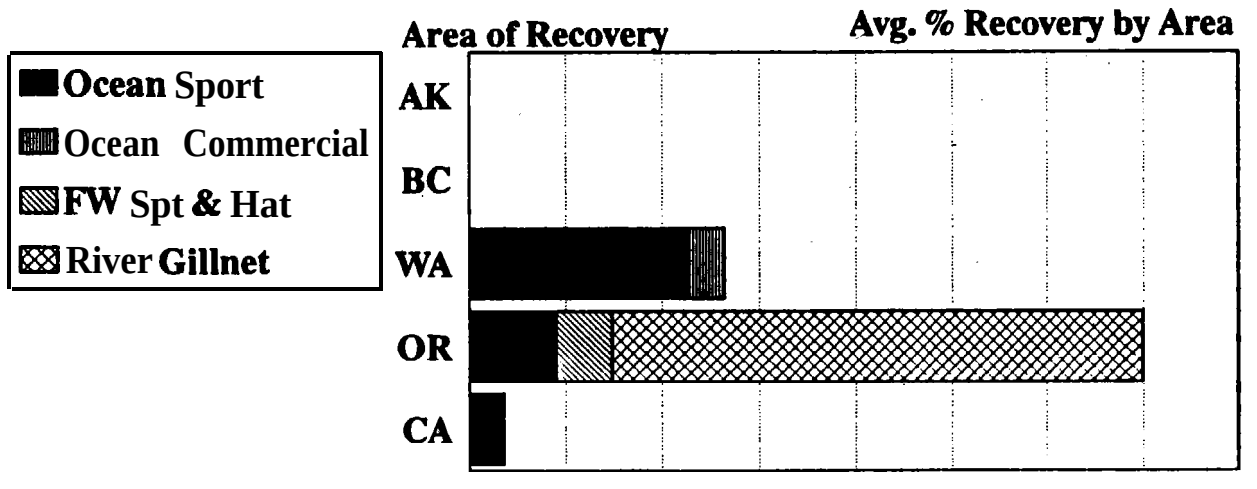
	AK	BC	WA	OR	CA
Ocean Sport	0	0	9.2	10.7	10.7
Ocean Commercial	0	0	0	0	0
FW Spt & Hat				0	
River Gillnet				69.3	

Avg. 0.03 % Survival

Figure 12.

SF Klaskanine Pond (Big Creek Stock) Coho Released in Youngs Bay

1990 Brood Year



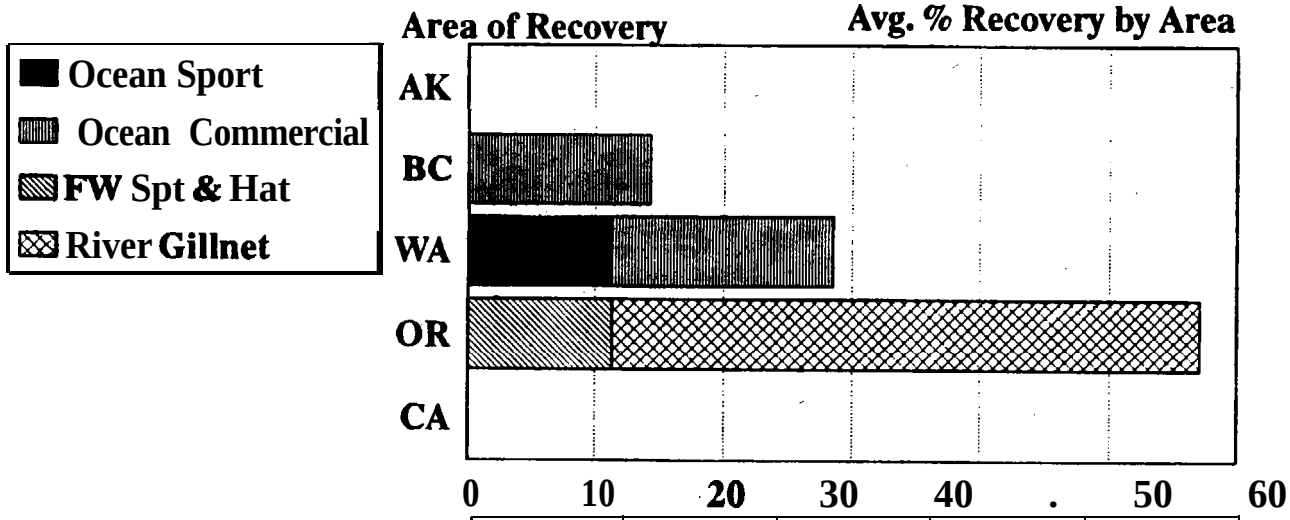
	AK	BC	WA	OR	CA
Ocean Sport	0	0	22.9	9	3.6
Ocean Commercial	0	0	3.6	0	0
FW Spt & Hat				5.8	
River Gillnet				5 5	. 2

Avg. 1.13 % Survival

Figure 13.

SF Klaskanine Pond (Kalama R. Stock) Coho Released in Youngs Bay

1990 Brood Year



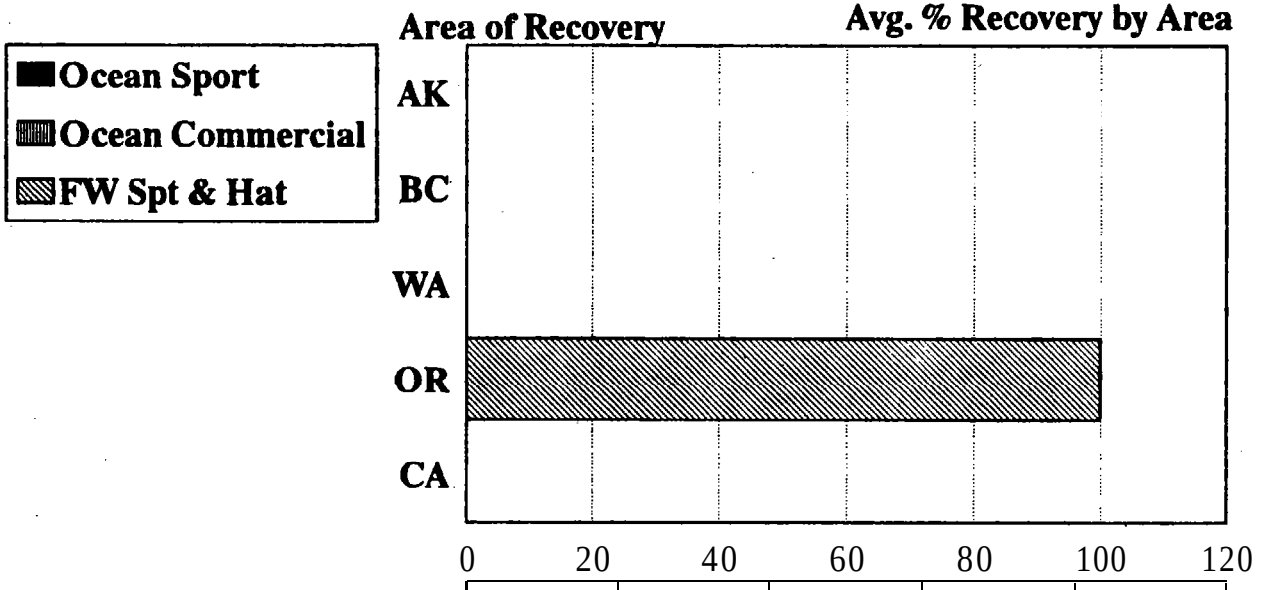
	AK	BC	WA	OR	CA
Ocean Sport	0	0	11.4	0	0
Ocean Commercial	0	143	17.1	0	0
FW Spt & Hat				11.4	
River Gillnet				45.7	

Avg. 0.13 % Survival

Figure 14.

M. Willamette Spring Chinook [S. F. Klaskanine Hat] Released in Klaskanine R. South Fork

1988 Brood Year



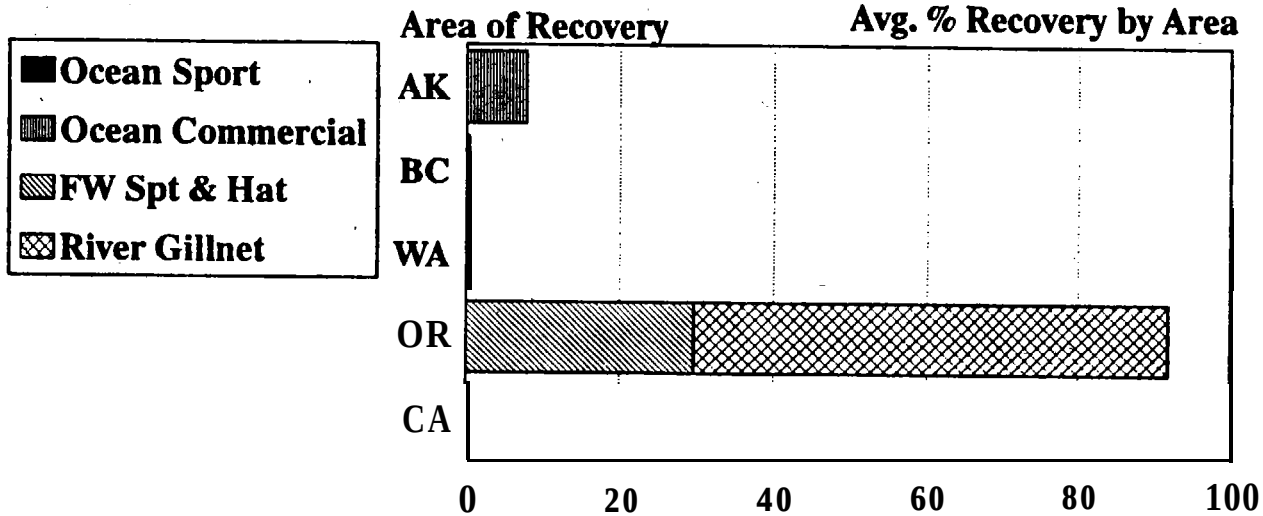
	AK	BC	WA	OR	CA
Ocean Sport	0	0		0	0
Ocean Commercial			0	0	0
FW Spt & Hat				100	

Avg. > 0.01 % Survival

Figure 15.

M. Willamette Spring Chinook [S. F. Klaskanine Hat] Released in Youngs River

1988 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	7.7	03	0.2	0	0
FW Spt & Hat				29.7	
River Gillnet				62.i	

Avg. 0.43 % Survival

Figure 16.

The 1987 brood Eagle Creek (Sandy stock) coho released in the Klaskanine River survived at a rate of 1.56 % (Figure 17).

The 1988 to 1989 brood Eagle Creek (Clackamas stock) coho released in the Youngs River survived at a rate of 4.69 % (Figure 18).

Clackamas Hatchery

Clackamas Hatchery is located on the Clackamas River 4 miles west of Estacada near McIver Park. Clackamas Hatchery rears and released spring chinook salmon, summer and winter steelhead trout.

The 1984 to 1988 brood Clackamas spring chinook released in the Clackamas River survived at an average rate of 0.58 %. They were caught primarily in the Oregon freshwater sport fishery with lesser contributions to the Alaska and British, Columbia ocean commercial and Columbia River gillnet fisheries (Figure 19).

The 1986 to 1987 brood Mid Willamette stock spring chinook released in the Clackamas River survived at an average rate of 1.66 %. They were caught primarily in the Oregon freshwater sport fishery with lesser contributions to the Alaska and British Columbia ocean commercial and Columbia River gillnet fisheries . (Figure 20).

The 1986 to 1987 brood Late Clackamas stock coho released in the Collawash River survived at a rate of 0.73 % (Figure 21).

None of the summer and winter steelhead were marked with coded-wire tags for evaluation.

Marion Forks Harchery

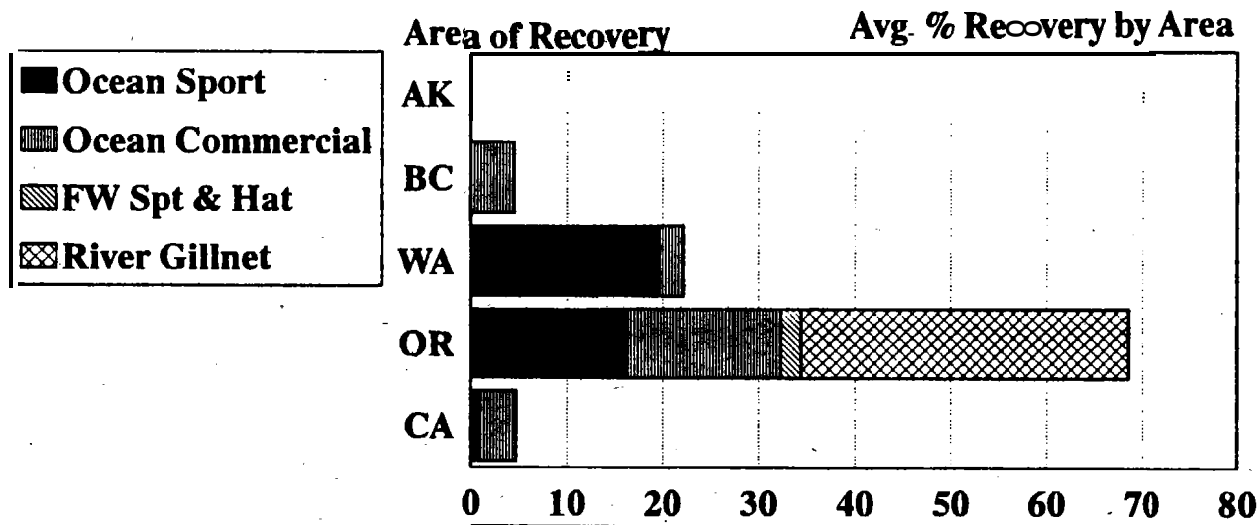
Marion Forks Hatchery is. located on 'the North Santiam River 10 miles east of Idana on Highway 22. Marion Forks Hatchery rears and releases spring chinook salmon, winter steelhead and cutthroat.

The 1984 to 1988 brood North Santiam spring chinook salmon stock released in the Santiam River and North Fork survived at an average rate of 1.35 % and contributed primarily to the Oregon freshwater sport and Columbia River gillnet fisheries and Alaska and British Columbia ocean fisheries (Figure 22).

The 1985 to 1987 brood North Santiam spring chinook salmon released in the Santiam River and South Fork survived at an average rate of 1.27 % and contributed primarily to the Oregon freshwater sport and Columbia River gillnet fisheries and Alaska and British Columbia ocean fisheries (Figure 23).

Eagle Creek (Sandy R. Stock) Coho Released in Klaskanine R

1987 Brood Year



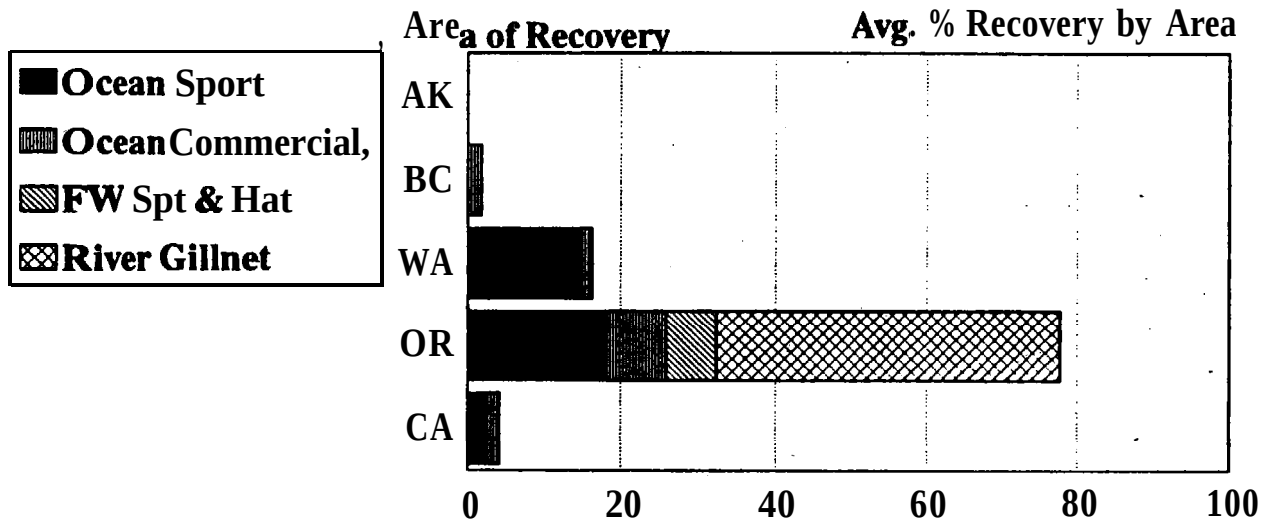
	AK	BC	WA	OR	CA
Ocean Sport	0	0	19.7	16.5	1
Ocean Commercial	0	4.5	2.5	15.7	3.7
FW Spt & Hat				2.2	
River Gillnet				34.2	

Avg. 1.56 % Survival

Figure 17.

Eagle Creek (Clackamas R. Stock) Coho Released in Youngs River

1988 -1989 Brood Year



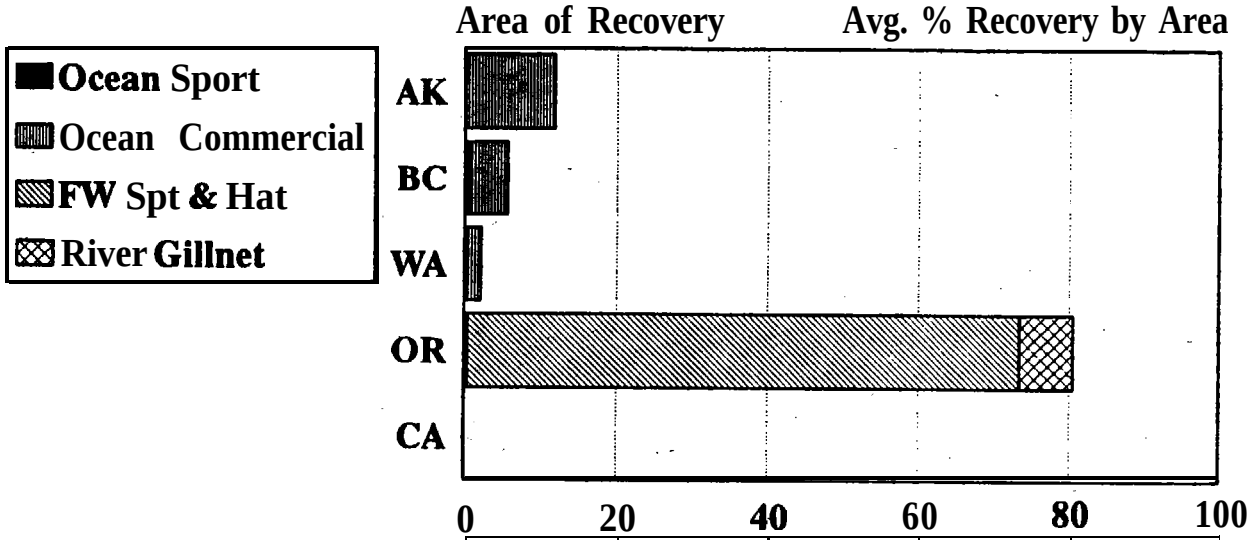
	AK	BC	WA	OR	CA
Ocean Sport	0	0	15	18.2	2.3
Ocean Commercial	0	1.8	13	7 . 7	2
FW Spt & Hat				6.6	
River Gillnet				45.2	

Avg. 4.69 % Survival

Figure 18.

Clackamas Spring Chinook
Released in Clackamas R

1984 - 1987 Brood Year



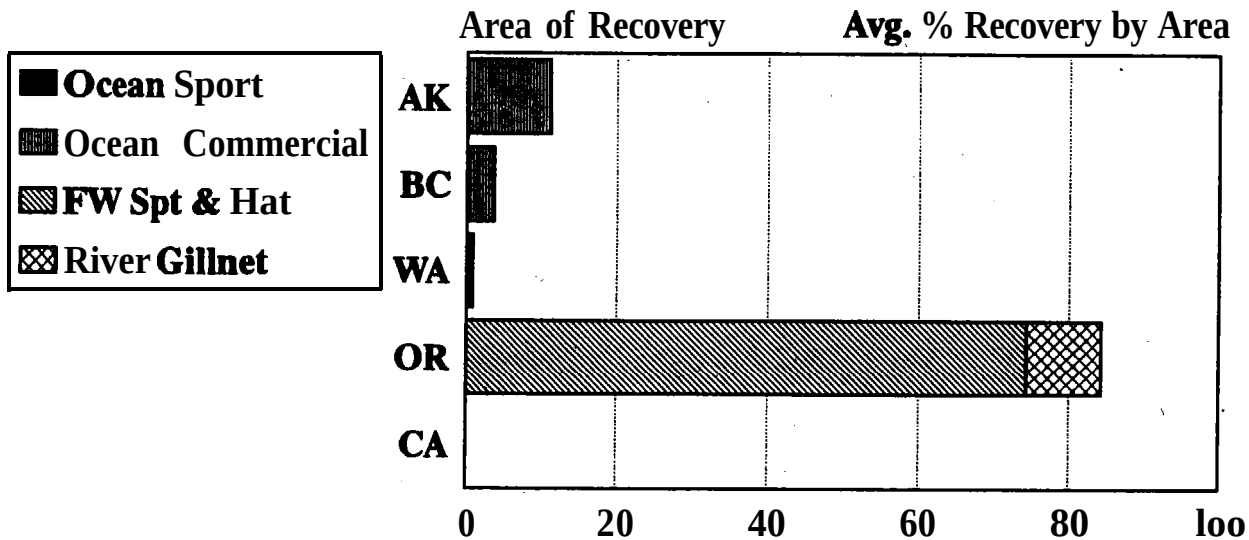
	AK	BC	WA	OR	CA
Ocean Sport	0.1	0.9	0.5	0.4	
Ocean Commercial-	11.7	4.7	1.7	0.1	
FW Spt & Hat				73	
River Gillnet				7	

Avg. 0.58 % Survival

Figure 19.

Willamette Spring Chinook
Released in Clackamas R

1986 - 1987 Brood Year



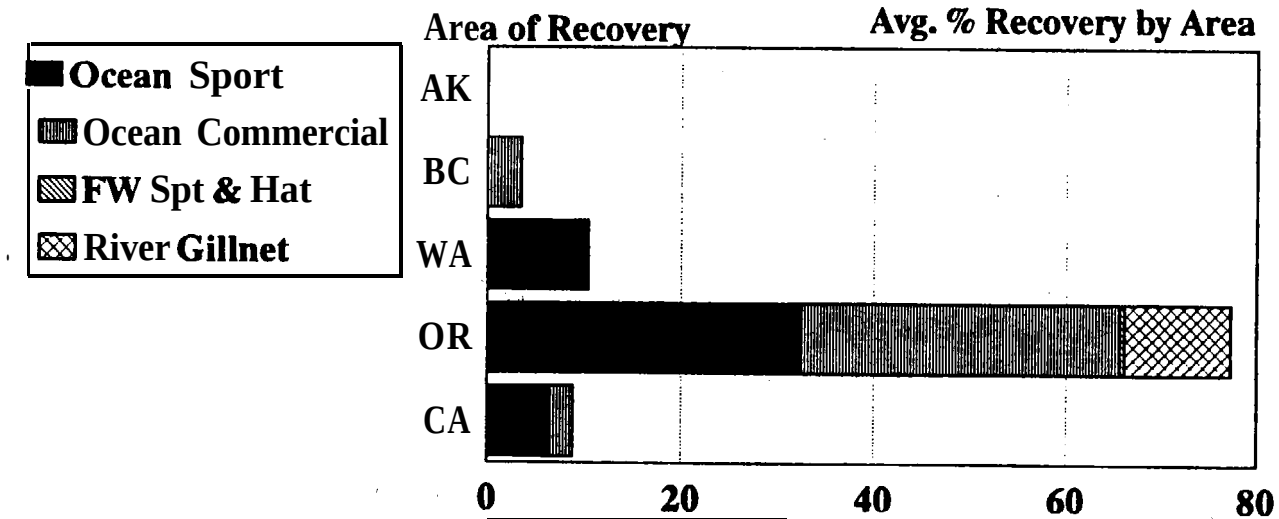
	AK	BC	WA	OR	CA
Ocean Sport	0.3		0.9		
Ocean Commercial	10.9	3.7			
FW Spt & Hat				74.4	
River Gillnet				9.9	

Avg. 1.66 % Survival

Figure 20.

Clackamas River Late Coho Stock Released in Collawash River

1986 - 1987 Brood Year



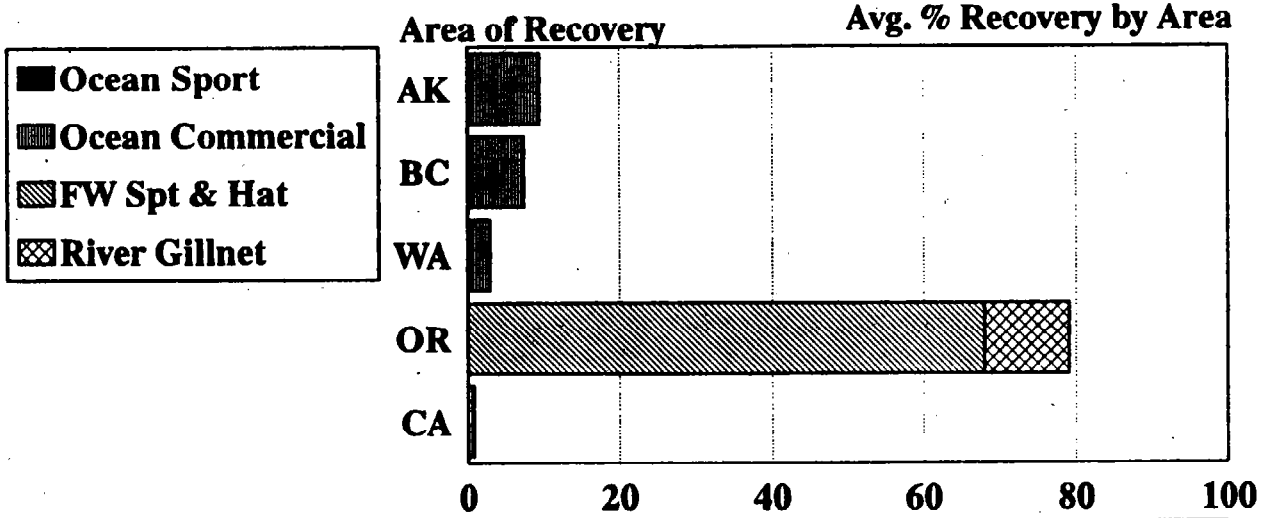
	AK	BC	WA	OR	CA
Ocean Sport	0	0	10.4	32.5	6.5
Ocean Commercial	0	3.5	0	33.1	2.4
FW Spt & Hat				0.5	
River Gillnet				11.2	

Avg. 0.73 % Survival

Figure 21.

Marion Forks (N. Santiam Stock) Spring Chinook Released in Santiam R. & N. Fork

1984 - 1988 Brood Year



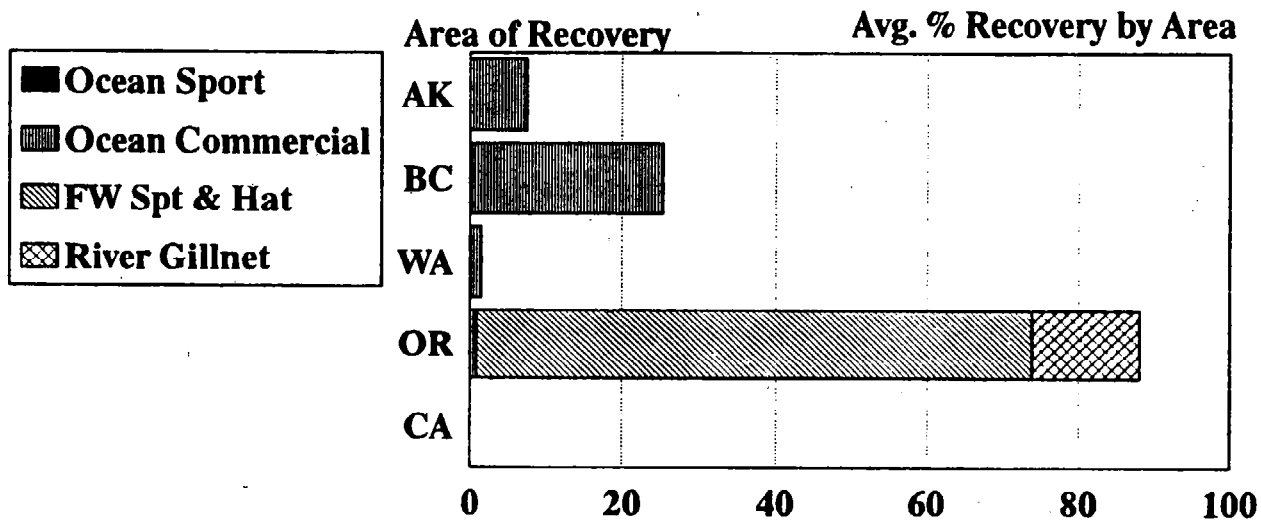
	AK	BC	WA	OR	CA
Ocean Sport	0.4	0.4	0.3	0	0
Ocean Commercial	9.2	7.1	2.7	0	0.8
FW Spt & Hat				67.9	
River Gillnet				11.2	

Avg. 1.35 % Survival

Figure 22.

Marion Forks (N. Santiam Stock) Spring Chinook Released in Santiam R., S. Fork

1985 - 1987 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0.3	0.1	0	0
Ocean Commercial	7.6	25	1.5	0.9	0
FW Spt & Hat				73	
River Gillnet				14.1	

Avg. 1.27 % Survival

Figure 23.

The 1984 brood year of South Santiam spring chinook salmon released in the Santiam River and North Fork survived at an average rate of 1.10 % and contributed primarily to the Oregon freshwater sport and Columbia River gillnet fisheries and Alaska and British Columbia ocean fisheries (Figure 24).

The 1985 brood winter steelhead were tagged but none were recovered. All other winter steelhead and cutthroat trout released by the Marion Forks Hatchery were not coded-wire tagged for evaluation.

south Santiam Hatchery

The South Santiam Hatchery is located below Foster Dam on the South Santiam River near Sweet Home. South Santiam Hatchery rears and releases spring chinook salmon and summer steelhead trout.

The 1984 to 1988 brood years of spring chinook salmon reared at South Santiam Hatchery and released in the South Santiam River survived at a rate of 0.91 % and contributed primarily to the Alaska and British Columbia ocean commercial, Oregon freshwater sport and Columbia River gillnet fisheries (Figure 25).

The 1986 to 1987 brood years of South Santiam spring chinook salmon reared at South Santiam Hatchery and released in the Willamette River survived at a rate of 1.09 % and contributed primarily to the Alaska and British Columbia ocean commercial, Oregon freshwater sport and Columbia River gillnet fisheries (Figure 26).

The winter steelhead trout released- by the South Santiam Hatchery were not coded-wire tagged to permit evaluation.

Stayton Rearing Pond

Stayton Pond, a refurbished gravel pit located south of Stayton is operated as a satellite of the South Santiam Hatchery. Tule fall chinook are reared and released from Stayton Pond.

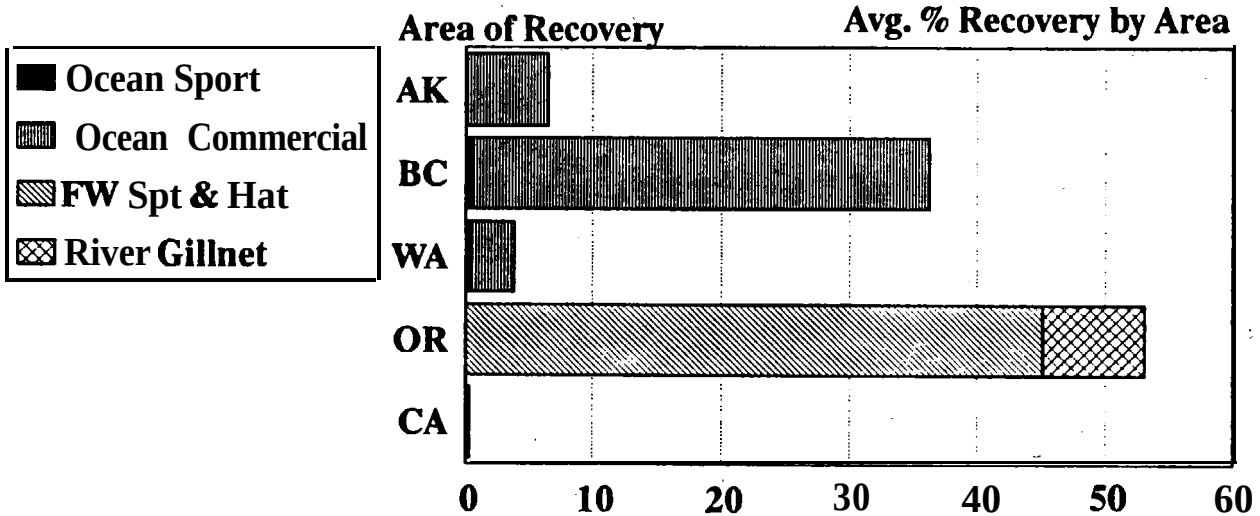
The 1984 to 1988 brood of tule fall chinook released from Stayton pond survived an average rate of 0.80 % and contributed primarily to the British Columbia, Washington and Oregon ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 27).

Roaring River Hatchery

Roaring River Hatchery rears and releases winter steelhead and rainbow trout. None'of these fish have been coded-wire tagged for evaluation.

Marion Forks (S. Santiam Stk) Spring Chinook Released in Santiam R. & N. Fork

1984 Brood Year



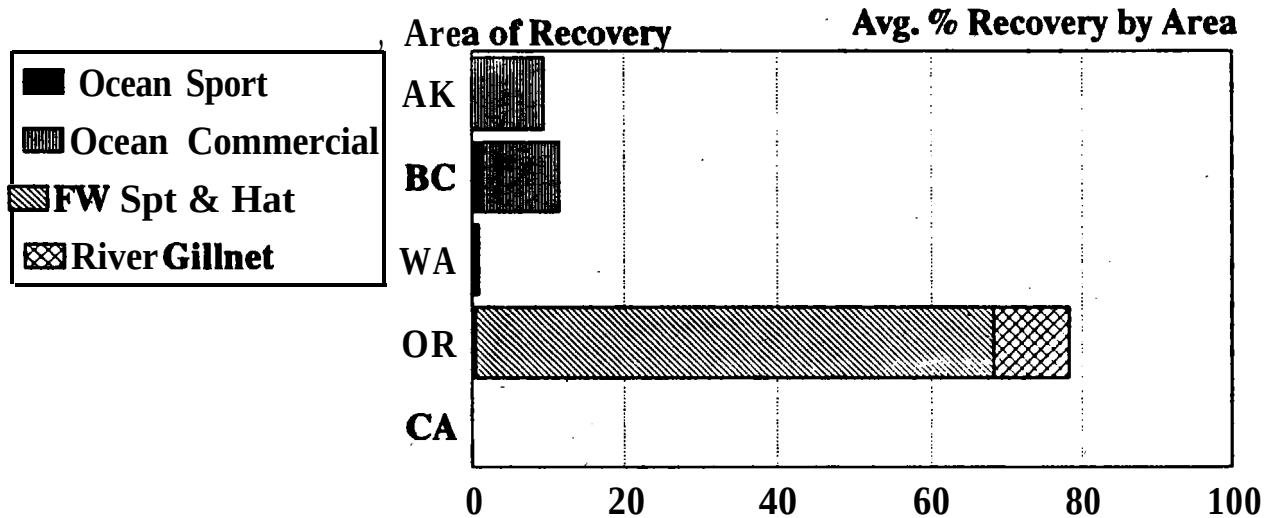
	AK	BC	WA	OR	CA
Ocean Sport	0.1	0.6	0.5		0.3
Ocean Commercial	6.4	35.6	3 3		0
FW Spt & Hat				45.1	
River Gillnet				8	

Avg. 1.10 % Survival

Figure 24.

S. Santiam (S. Santiam Stock) Spring Chinook Released in Santiam R., S. Fork

1984 - 1988 Brood Year



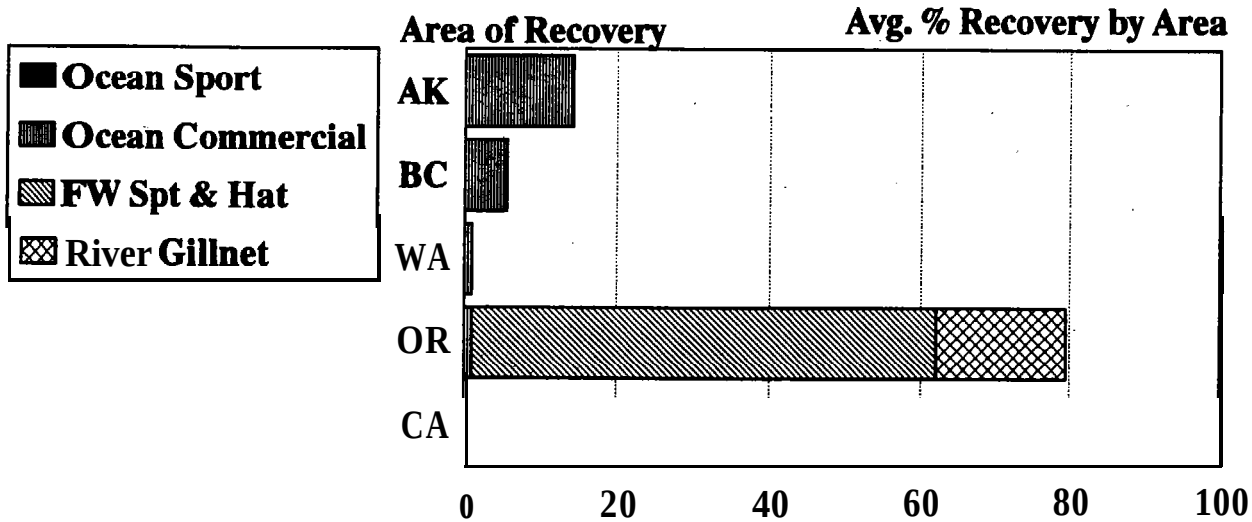
	AK	BC	WA	OR	CA
Ocean Sport	0	1.6	0.1	0.2	0
Ocean Commercial	9.5	9.8	0.8	03	0
FW Spt & Hat				67.8	
River Gillnet				10	

Avg. 0.91 % Survival

Figure 25.

S. Santiam Spring Chinook Released in Willamette River

1986 - 1987 Brood Year



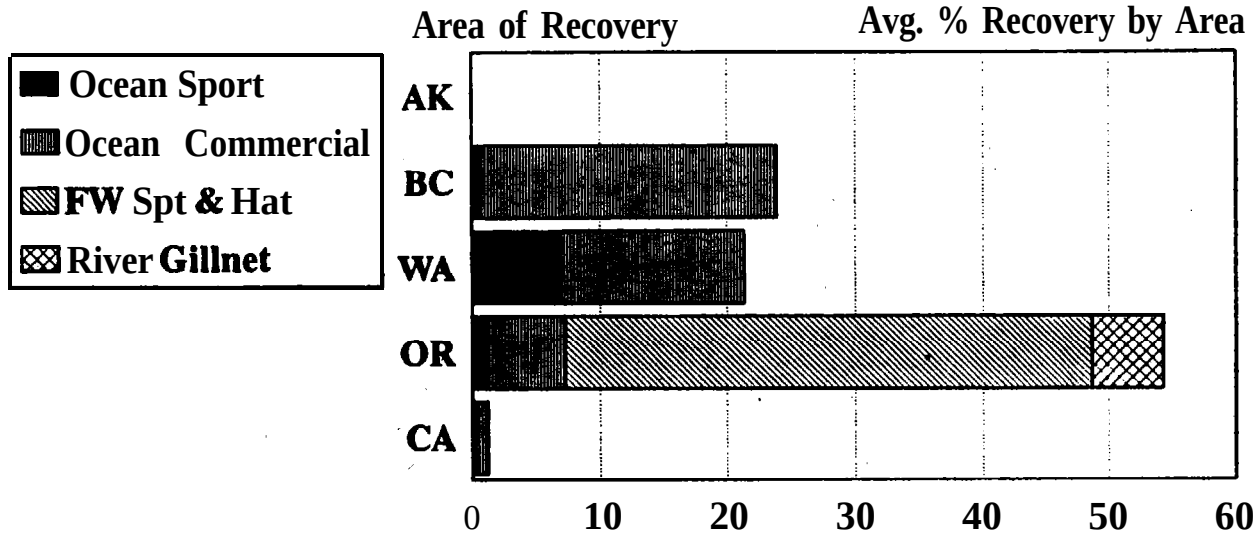
	AK	BC	WA	OR	CA
Ocean Sport	0		0	0	0
Ocean Commercial	14.2	5.5	1	1	0
FW Spt & Hat				61.1	
River Gillnet				17.4	

Avg. 1.09 % Survival

Figure 26.

Stayton Pond Tule Fall Chinook Released in Willamette R

1984 - 1988 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	,	0.8	7	1.1	0 3
Ocean Commercial		23.1	14.4	6.2	1
FW Spt & Hat				41.4	
River Gillnet				5.6	

Avg. 0.80 % Survival

Figure 27.

McKenzie Hatchery

McKenzie Hatchery is located on the McKenzie River 18 miles east of Springfield. McKenzie Hatchery rears and releases spring chinook salmon and summer steelhead trout.

The 1984 to 1988 brood years of spring chinook salmon released in the McKenzie River survived at a rate of 1.08% and contributed primarily to the Alaska and British Columbia ocean commercial, Oregon freshwater sport and Columbia River gillnet fisheries (Figure 28).

None 'of the summer steelhead released from McKenzie Hatchery have been coded-wire tagged for evaluation.

Leaburg Hatchery

Leaburg Hatchery is located on the McKenzie River off Highway 126, 16 miles east of Springfield. McKenzie Hatchery rears and releases summer steelhead and'rainbow trout. None of these fish have been coded-wire **tagged** for evaluation.

Willamette Hatchery

Willamette Hatchery is located on the Willamette River 1 mile east of Oakridge off Highway 58. Willamette Hatchery rears and -releases spring chinook salmon, summer and winter steelhead and rainbow trout.

The 1984 to 1988 brood years of spring chinook salmon reared at Willamette Hatchery and released in the middle fork of the Willamette Riversurvived at a rate of 1.21% and contributed primarily to the Alaska and British Columbia ocean commercial, Oregon freshwater sport and Columbia River gillnet fisheries (Figure 29).

Sandy Hatchery

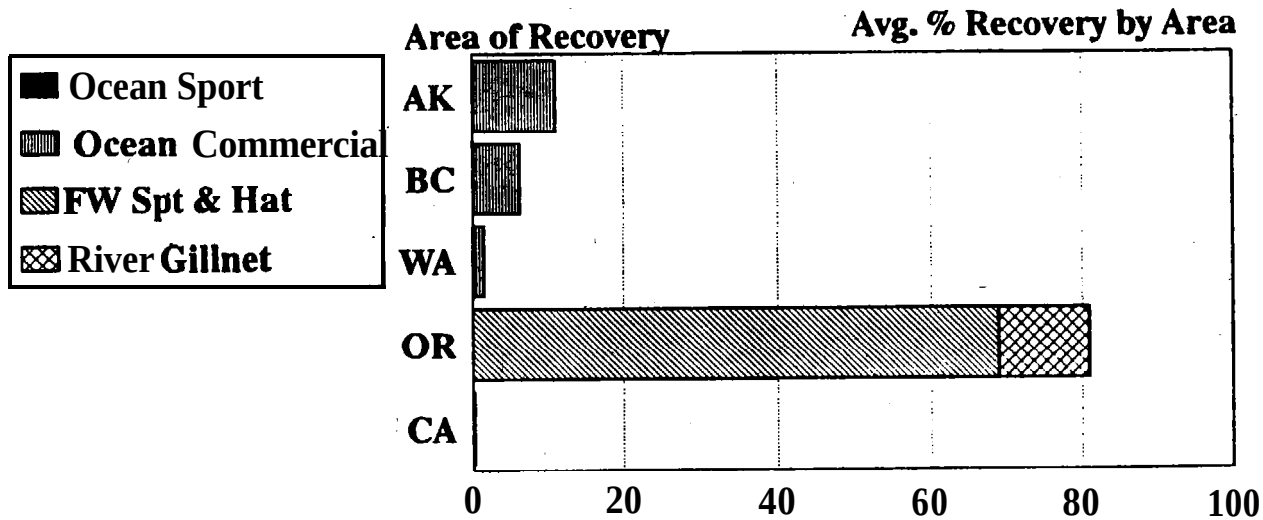
Sandy Hatchery is located on the Sandy River 1 mile northeast of Sandy off Highway 26. Sandy Hatchery rears and releases coho salmon, rainbow and brook trout.

The 1986 to 1990 brood years of coho released in the Sandy River, survived at an' average rate of 3.69 % and contributed primarily to the Washington and Oregon ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 30).

The 1989 brood year of Sandy stock coho reared at Trojan pond and released in the Columbia River survived at an average rate of

McKenzie Spring Chinook
Released in McKenzie R

1984 - 1988 Brood Year



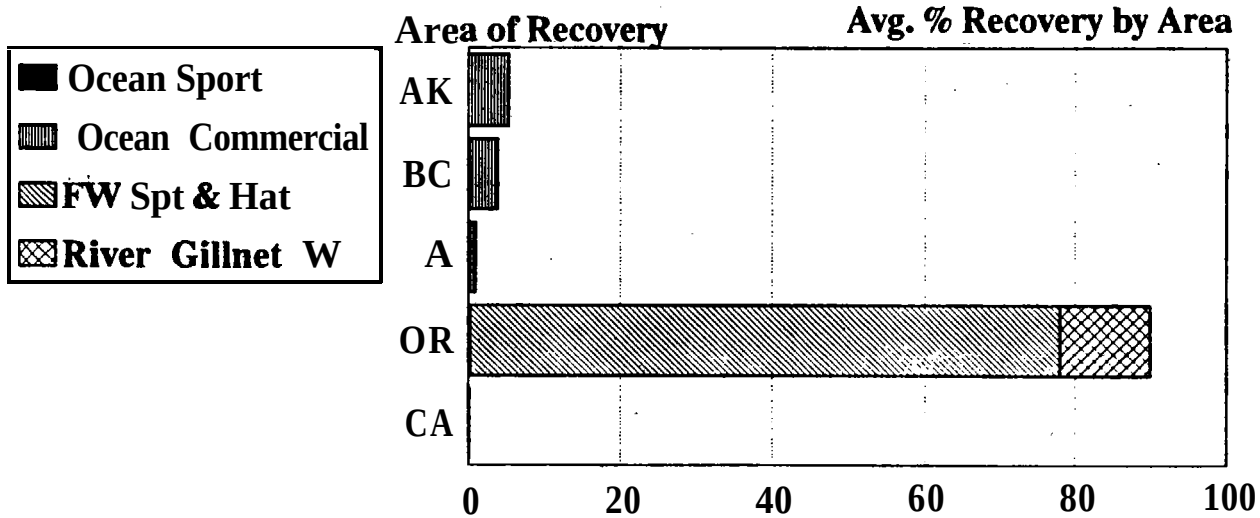
	AK	BC	WA	OR	CA
Ocean Sport	0.2	0.1	0.4	0	0
Ocean Commercial	10.8	6.1	1.1	0	0.2
FW Spt & Hat				6 9	. 1
River Gillnet				11.9	

Avg. 1.08 % Survival

Figure 28.

Willamette Spring Chinook
Released in Wllamette R., M. Fork

1984 - 1988 Brood Year

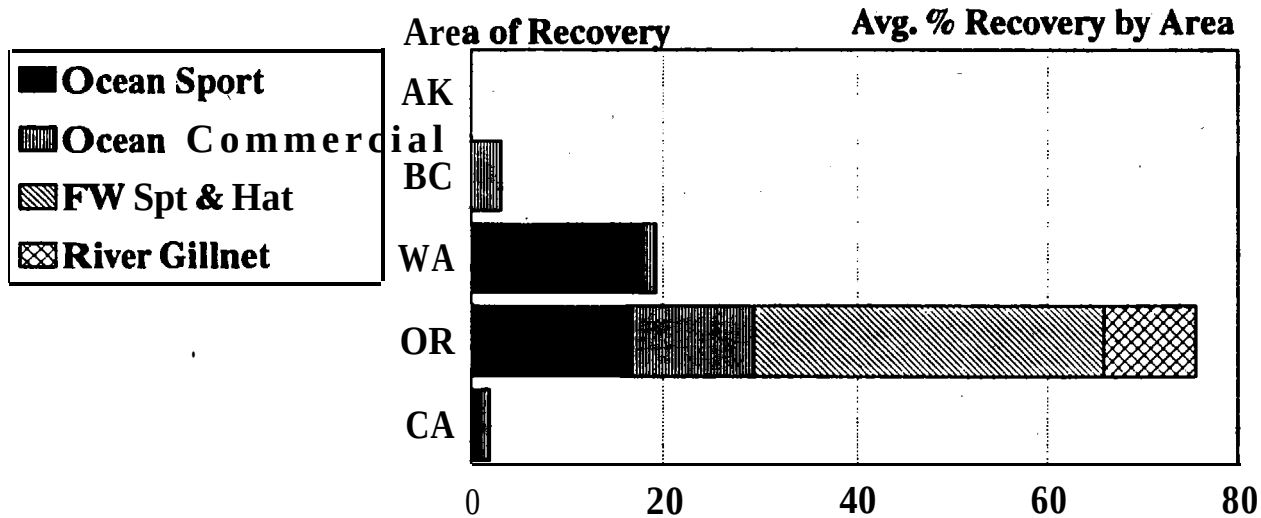


	AK	BC	WA	OR	CA
Ocean Sport		0.1	0.2	0.1	0.1
Ocean Commercial	53	3.7	0.8	0.1	0
FW Spt & Hat				77.8	
River Gillnet				11.9	

Avg. 1.21% Survival

Figure 29.

Sandy Coho
Released in Sandy River
1986 - 1990 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	18	16.9	1.1
Ocean Commercial	0	3.2	13	12.5	0.9
FW Spt & Hat				36.5	
River Gillnet				9.6	

Avg. 3.69 % Survival

Figure 30.

0.2 % and contributed primarily to the Washington and Oregon ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 31).

None of the rainbow or brook trout released by Sandy Hatchery were coded-wire tagged for evaluation.

Cascade Hatchery

The Cascade Hatchery is located off Highway 84 near Bonneville Dam. Cascade Hatchery rears and releases coho salmon that are presently all trucked and released in the Yakima and Umatilla River systems.

The 1986 to 1990 brood years of coho released in the Umatilla River survived at an average rate of 1.82 % and contributed primarily to the Washington, Oregon and California ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 32).

The 1986 to 1990 brood years of coho released in the Yakima River survived at an average rate of 0.94 % and contributed primarily to the Washington, Oregon and California ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 33).

Bonneville Hatchery

Bonneville Hatchery is located on the Columbia River below Bonneville Dam just off Highway 84. Bonneville Hatchery rears and releases tule and up-river bright fall chinook, spring chinook and coho salmon.

The 1984 to 1988 brood years of tule fall chinook survived at an average rate of 0.79 % and contributed primarily to the British Columbia, Washington and Oregon ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 34).

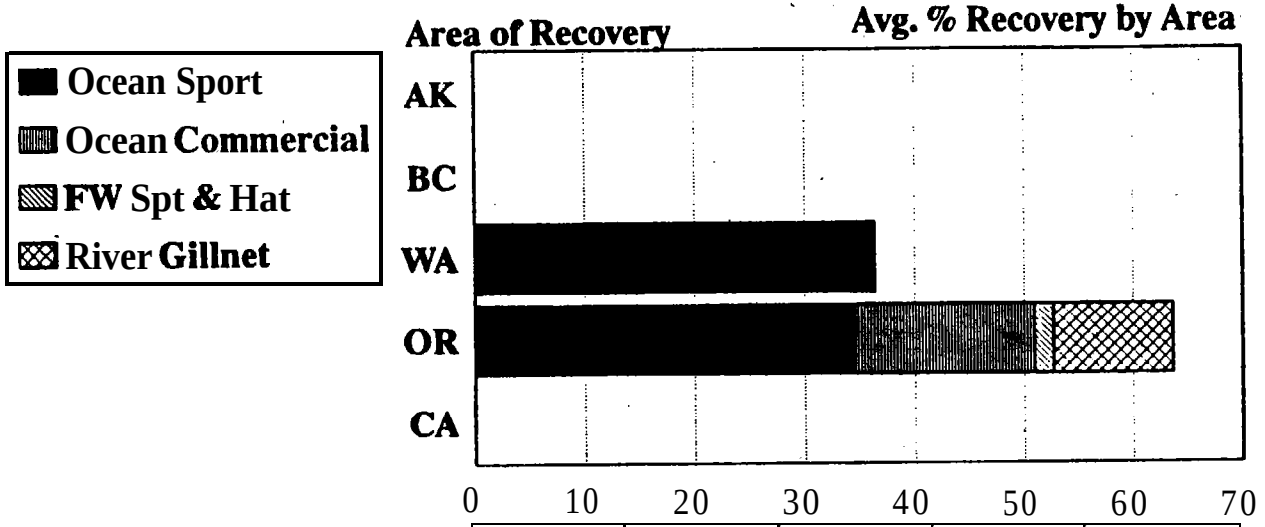
The 1984 to 1988 brood years of up-river bright fall chinook survived at an average rate of 1.56 % and contributed primarily to the Alaska and British Columbia ocean commercial fisheries and the Columbia River gillnet fishery (Figure 35).

The 1984 to 1987 brood years of up-river bright fall chinook released in the Umatilla River survived at an average rate of 1.60 % and contributed primarily to the Alaska and British Columbia ocean commercial fisheries and the Columbia River gillnet fishery (Figure 36).

The 1988 brood year of up-river bright, fall chinook released' in the Mid-Columbia River survived at an average rate of 0.16 % and contributed primarily to the British Columbia ocean commercial

Trojan Pond (Sandy River Stock) Coho Released in Columbia River

1989 Brood Year



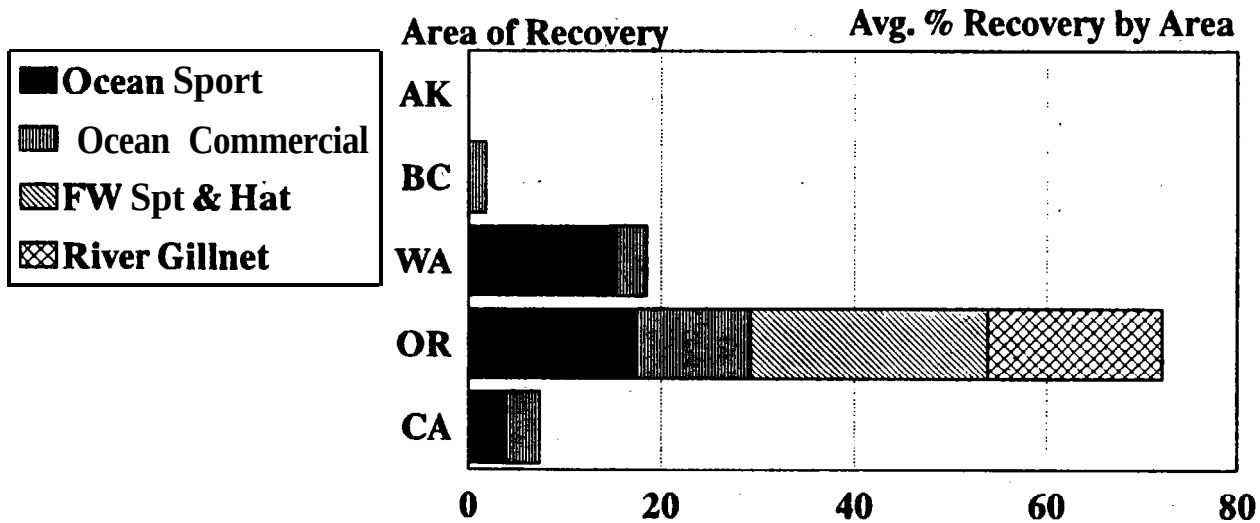
	AK	BC	WA	OR	CA
Ocean Sport	0	0	36.4	34.6	0
Ocean Commercial.	0	0	0	16.4	0
FW Spt & Hat				1.8	
River Gillnet				10.9	

Avg.0.2 % Survival

Figure 31.

Cascade Coho
Released in Umatilla R.

1986 - 1990 Brood Year



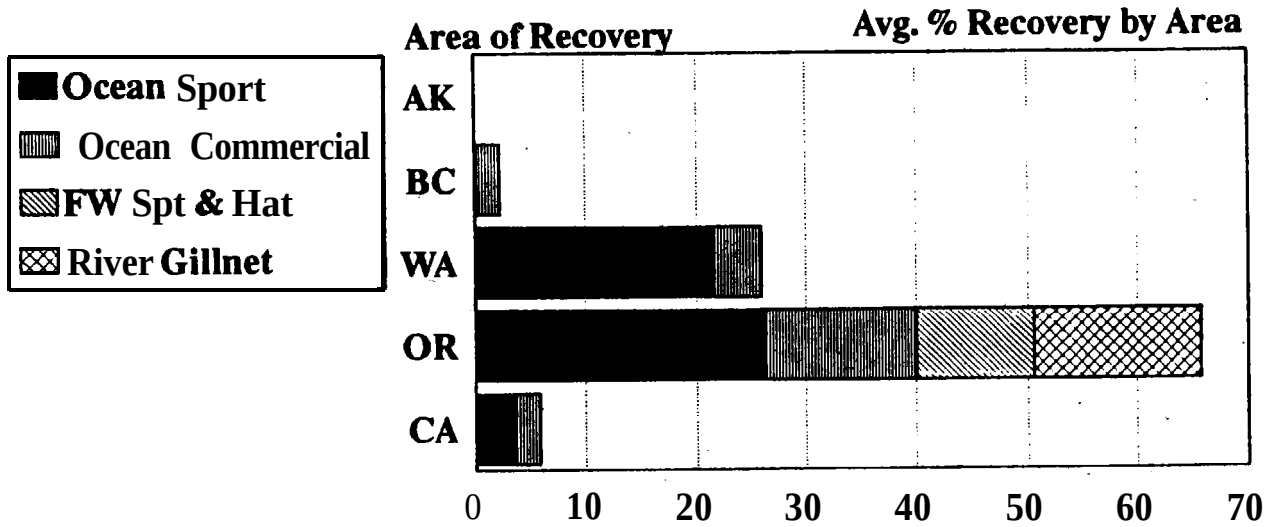
	AK	BC	WA	OR	CA
Ocean Sport	0	0.1	15.5	17.6'	4.1
Ocean Commercial	0	1.8	3	11.7	3.4
FW Spt & Hat				24.7	
River Gillnet				18.2	

Avg. 1.82 % Survival

Figure 32.

Cascade Coho
Released in Yakima R.

1986 - 1990 Brood Year



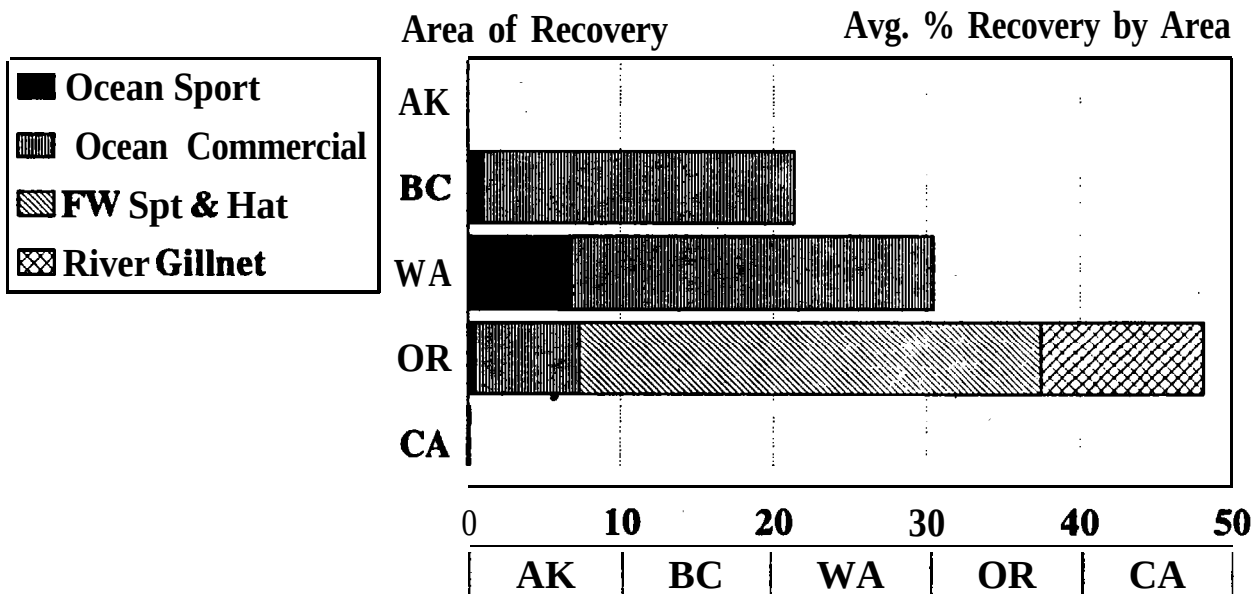
	AK	BC	WA	OR	CA
Ocean Sport	0	0.1	21.7	26.4	3.7
Ocean Commercial	0	2.2	4.3	13.7	2.2
FW Spt & Hat				10.5	
River Gillnet				15.2	

Avg. 0.94 % Survival

Figure 33.

Bonneville Tule Fall Chinook

1984 - 1988 Brood Year



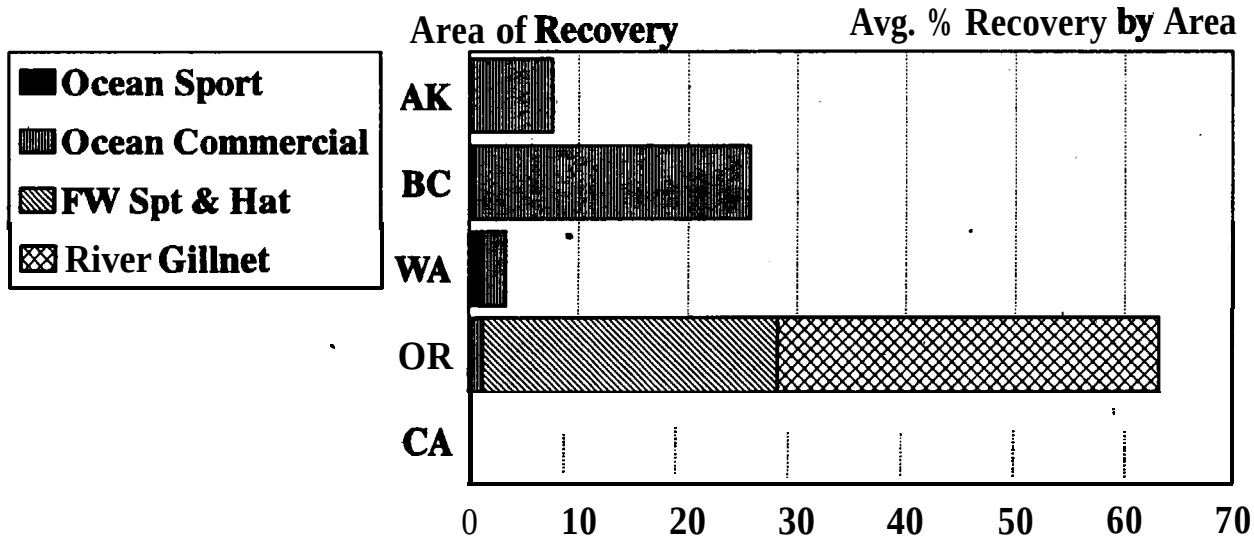
	AK	BC	WA	OR	CA
Ocean Sport		1	6.8	0.5	0
Ocean Commercial		20.4	23.7	6.8	0.1
FW Spt & Hat				30.2	
River Gillnet				10.7	

Avg. 0.79 % Survival

Figure 34.

Bonneville URB Fall-Chinook Released in Tanner Creek

1984 - 1988 Brood Year



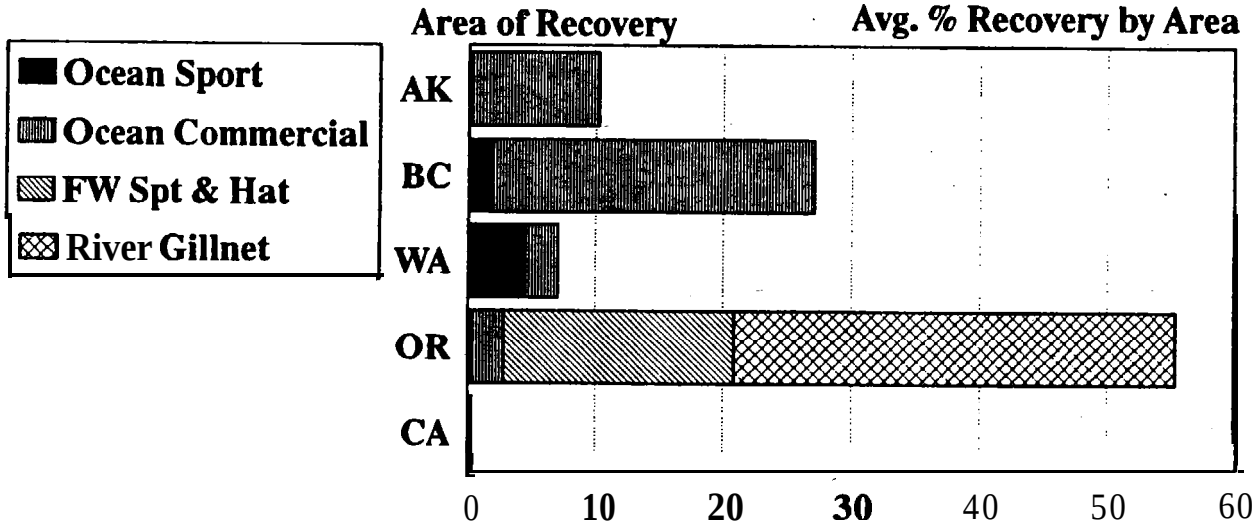
	AK	BC	WA	OR	CA
Ocean Sport	0.1	0.6	1.4	0.2	0.1
Ocean Commercial	7.5	25.1	2	1.1	0.1
FW Spt & Hat				26.9	
River Gillnet				34.9	

Avg. 1.56 % Survival

Figure 35.

Bonneville URB Fall Chinook Released in Umatilla R

1984 - 1987 Brood Year



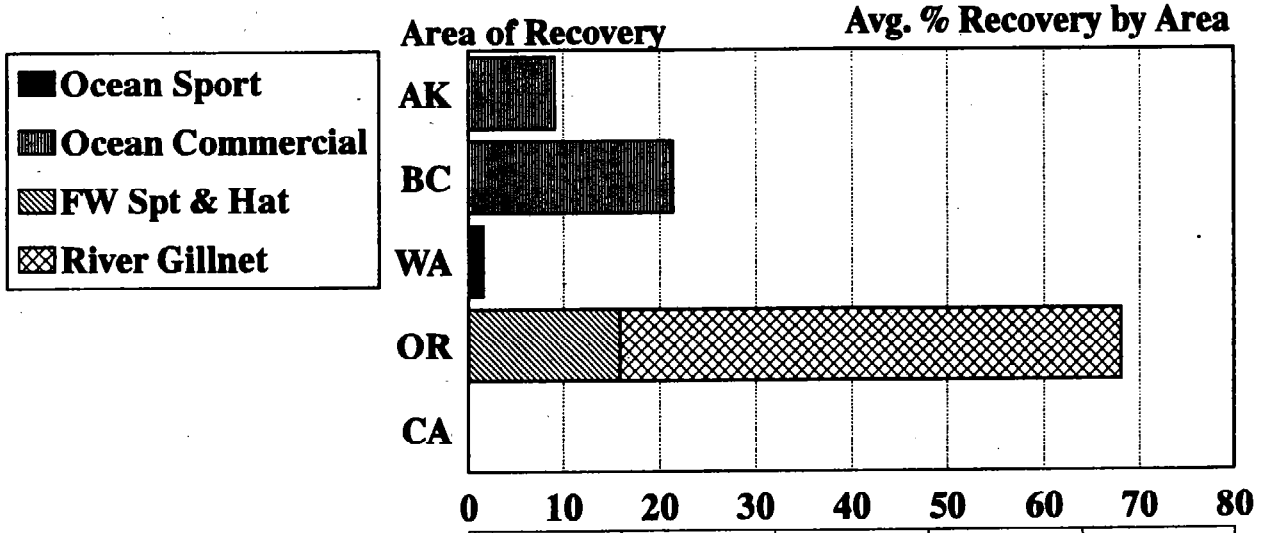
	AK	BC	WA	OR	CA
Ocean Sport	03	1.9	4.5	0.4	0.1
Ocean Commercial	10	25.2	2.6	2.4	0.2
FW Spt & Hat				18.1	
River Gillnet				34.5	

Avg. 1.60 % Survival

Figure 36.

Bonneville URB Fall Chinook Released in Mid-Columbia R

1988 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	1.5	0	0
Ocean Commercial	9.1	21.4	0	0	0
FW Spt & Hat				15.9	
River Gillnet				52.2	

Avg. 0.16 % Survival

Figure 37.

fisheries and the Columbia River freshwater and gillnet fishery (Figure 37).

The 1986 brood of up river bright summer chinook released in the Columbia River at Bonneville Hatchery survived at an average, rate of 0.22 % and contributed primarily to the Alaska and British Columbia ocean commercial fisheries and the Columbia River gillnet fishery (Figure 38).

The 1986 to 1988 brood of Carson spring chinook chinook released in the Umatilla River survived at an average rate of 0.25 % and contributed primarily to the Columbia River freshwater sport and gillnet fishery (Figure 39).

The 1986 to 1990 brood years of coho released from Bonneville Hatchery survived at an average rate of 2.93% and contributed primarily to the Washington, Oregon and California ocean sport and commercial fisheries and the Columbia River gillnet fishery (Figure 40).

oxbow Hatchery

Oxbow Hatchery is located on the Columbia River 2 miles east of Cascade Locks off Highway 84. Oxbow Hatchery rears coho and spring chinook salmon. Part of the coho reared in the Herman Creek ponds are trucked to Bonneville Hatchery for extended rearing and acclimation prior to release at Bonneville. The remainder of the coho started at Oxbow are stocked in Wahkeena Pond for extended rearing and released from that location. Wahkeena Pond is operated as a satellite of Oxbow Hatchery.

The 1984 brood Carson stock spring chinook-reared at Oxbow/Bonneville Hatchery and released in Lookingglass Creek survived at a rate of 0.08 % and contributed primarily the Columbia freshwater sport and Columbia River gillnet fishery (Figure 41).

The 1986 to 1988 brood Carson stock spring chinook reared at Oxbow/Bonneville Hatchery and released in'the West Fork of Hood River survived at a rate of 0.19 % and contributed primarily to the Columbia freshwater sport and Columbia River gillnet fishery (Figure 42).

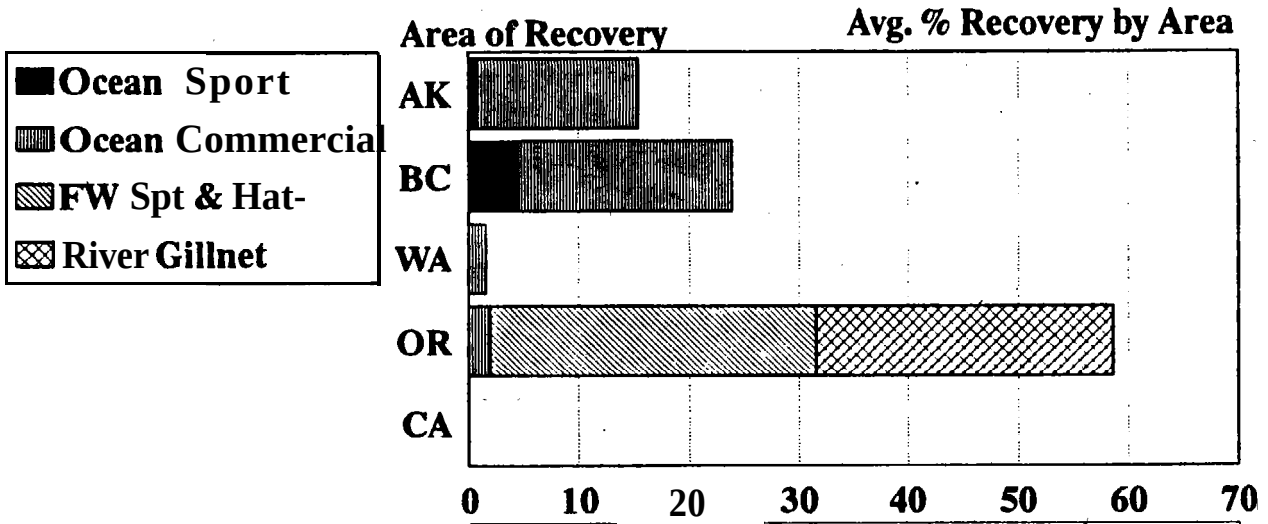
Wahkeena Pond

Wahkeena Pond is a natural lake rearing location near Rooster Rock State Park off Highway 84. Coho stocked in Wahkeena Pond are fed daily by the crew from Oxbow Hatchery.

The 1986 to 1990 brood years of coho reared in Wahkeena Pond survived at an average rate of 1.41 % and contributed primarily to the Washington, Oregon and California ocean sport and

Bonneville URB Summer Chinook Released in Tanner Creek

1986 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0.9	4.6	0	0	0
Ocean Commercial	14.5	193	1.6	2	0
FW Spt & Hat				29.5	
River Gillnet				27.1	

Avg. 0.22 % Survival

Figure 38.

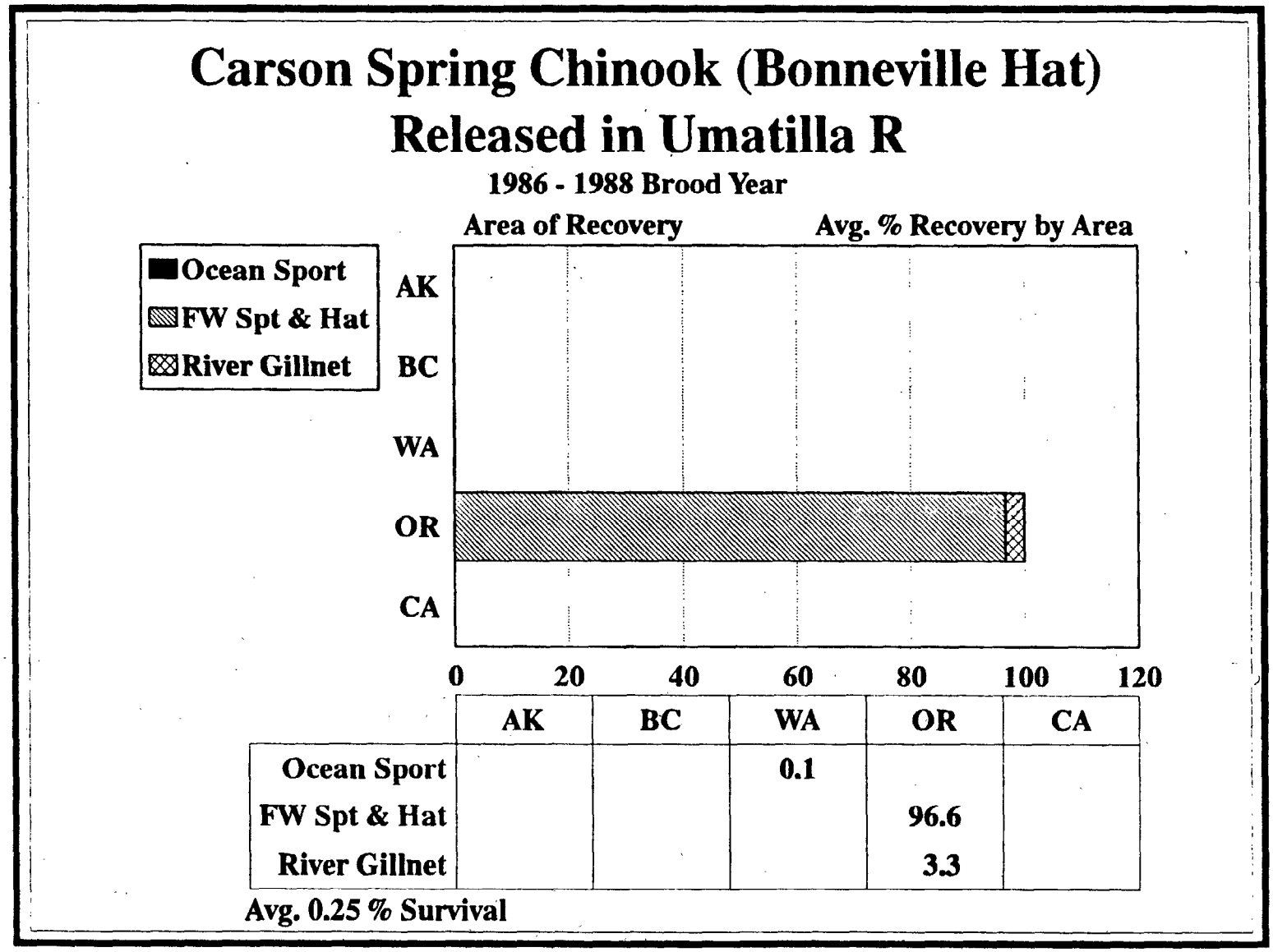
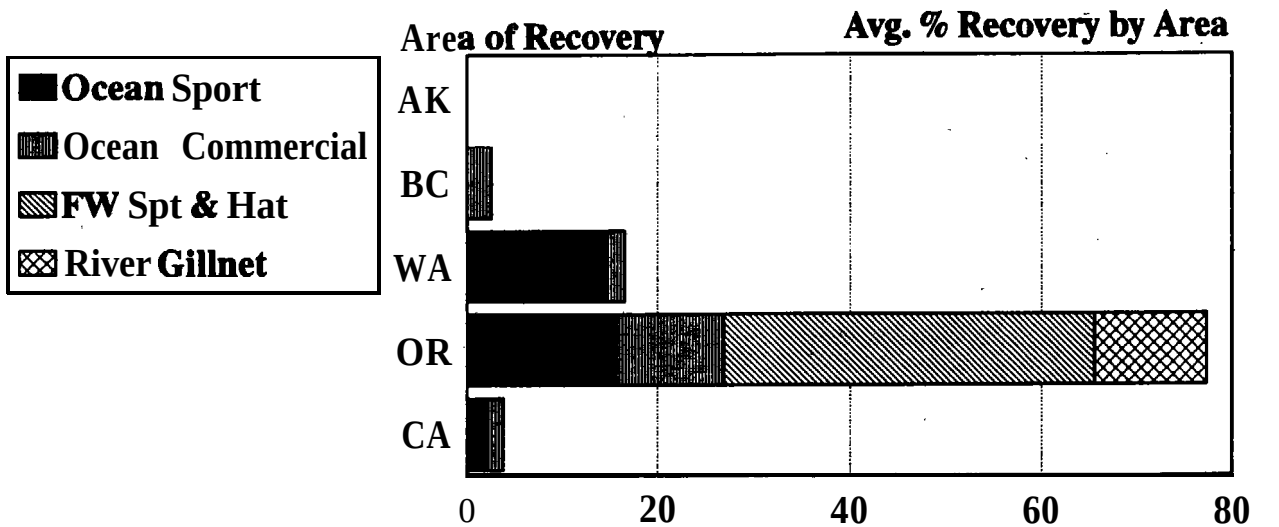

Carson Spring Chinook (Bonneville Hat)
Released in Umatilla R
1986 - 1988 Brood Year
Area of Recovery
Avg. % Recovery by Area
Ocean Sport
FW Spt & Hat
River Gillnet
AK
BC
WA
OR
CA
0
20
40
60
80
100
120
AK
BC
WA
OR
CA
Ocean Sport
0.1
FW Spt & Hat
96.6
River Gillnet
3.3
Avg. 0.25 % Survival

Figure 39.

Bonneville Coho
Released in Tanner Creek

1986 - 1990 Brood Year



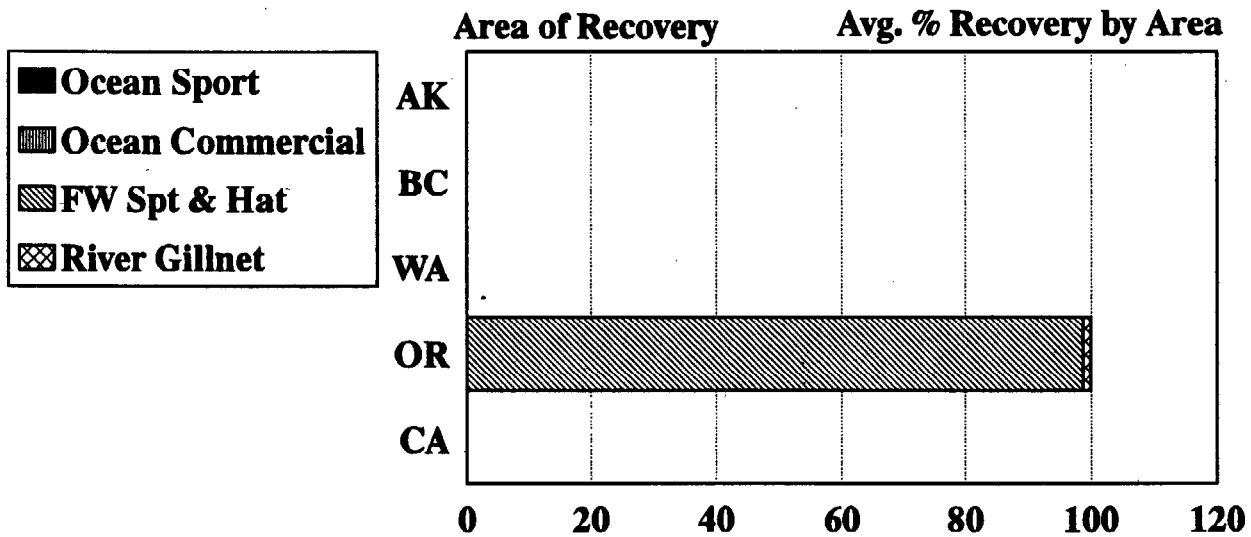
	AK	BC	WA		OR	CA
Ocean Sport	0		14.8	15.7	2.2	
Ocean Commercial	0	2.5	1.8	11.2	1.5	
FW Spt & Hat				38.6		
River Gillnet				11.8		

Avg. 2.93 % Survival

Figure 40.

Carson Spring Chinook (Bonneville Hat) Released in Lookingglass Creek

1984 Brood Year



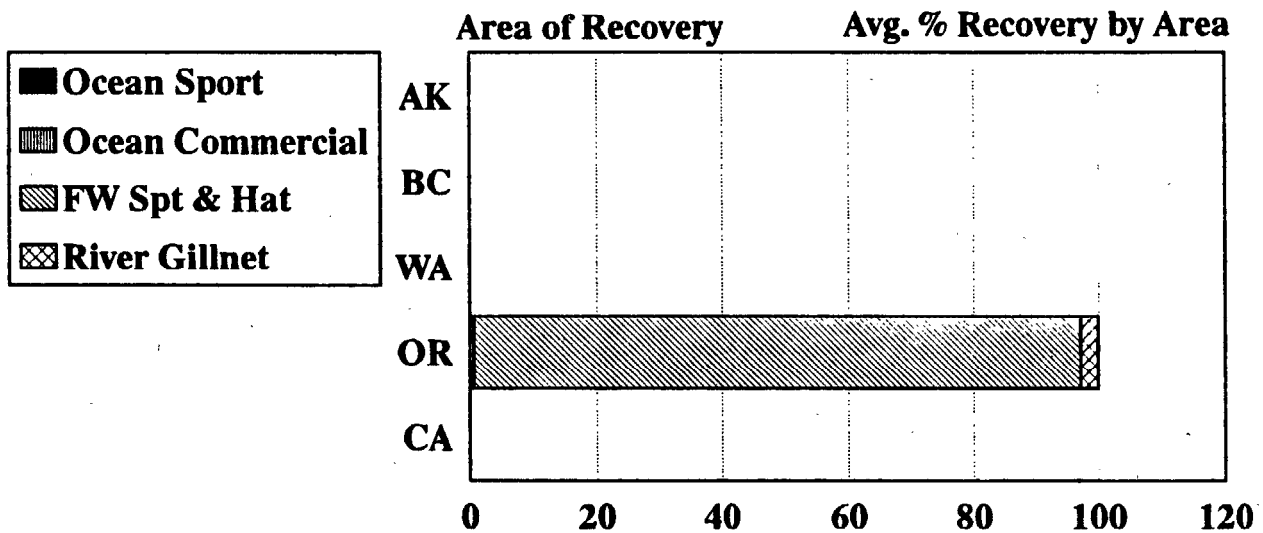
	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0	0	0	0	0
FW Spt & Hat				98.8	
River Gillnet				1.2	

Avg. 0.08 % Survival

Figure 41.

Carson Spring Chinook (Bonneville Hat) Released in West Fork Hood R.

1986 - 1988 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0	0	0	0.8	0
FW Spt & Hat				96.4	
River Gillnet				2.8	

Avg. 0.19 % Survival

Figure 42.

commercial fisheries and the Columbia River gillnet fishery (Figure 43).

Round Butte Hatchery

Round Butte Hatchery is located at the base of Round Butte Dam on the Deschutes River east of Madras. Round Butte Hatchery rears and releases spring chinook, summer steelhead and brown trout.

The 1984 to 1988 brood years of Deschutes spring chinook reared at Round Butte hatchery and released in the Deschutes River survived at an average rate of 1.74 % and contributed primarily. to the freshwater sport fishery in the Columbia and Deschutes Rivers (Figure 44).

The summer steelhead and brown trout released from Round Butte Hatchery have not been coded-wire tagged for evaluation.

Oak Springs Hatchery

Oak Springs Hatchery is located 'on the Deschutes River 3 miles north of Maupin. Oak Springs Hatchery rears and releases summer and winter steelhead and rainbow trout.

The 1987 to 1989 brood Umatilla stock summer steelhead reared at Oaks Springs and released'in the Umatilla River survived at an average rate of 0.41 % and contributed primarily to the Columbia River sport and gillnet fisheries (Figure 45).

Wizard Falls Hatchery

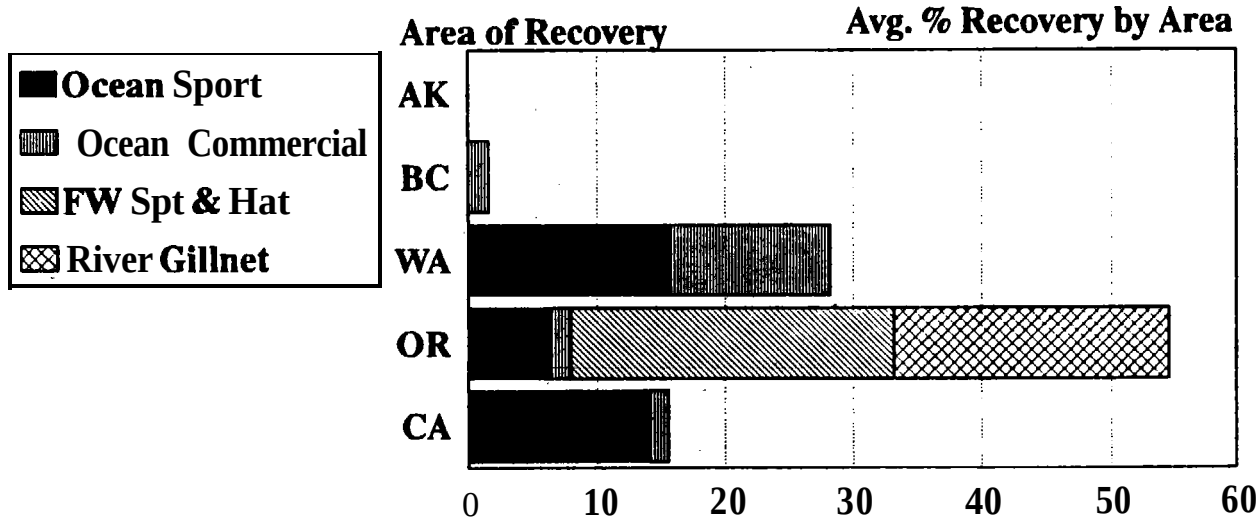
Wizard Falls Hatchery is located on the Metrolis River 2 miles north of Camp Sherman off Highway 20. Wizard Falls Hatchery rears and releases Atlantic and kokanee salmon, brown, brook and rainbow trout. None of these fish have been coded-wire tagged for evaluation.

Fall River Hatchery

Fall River Hatchery is located on Fall River, a tributary of the Deschutes River south east of Bend. Fall River Hatchery rears and releases cutthroat, brook and rainbow trout. None of these fish have been coded-wire tagged for evaluation.

Wahkeena Pond Coho
Released in Columbia River

1986 - 1990 Brood Year



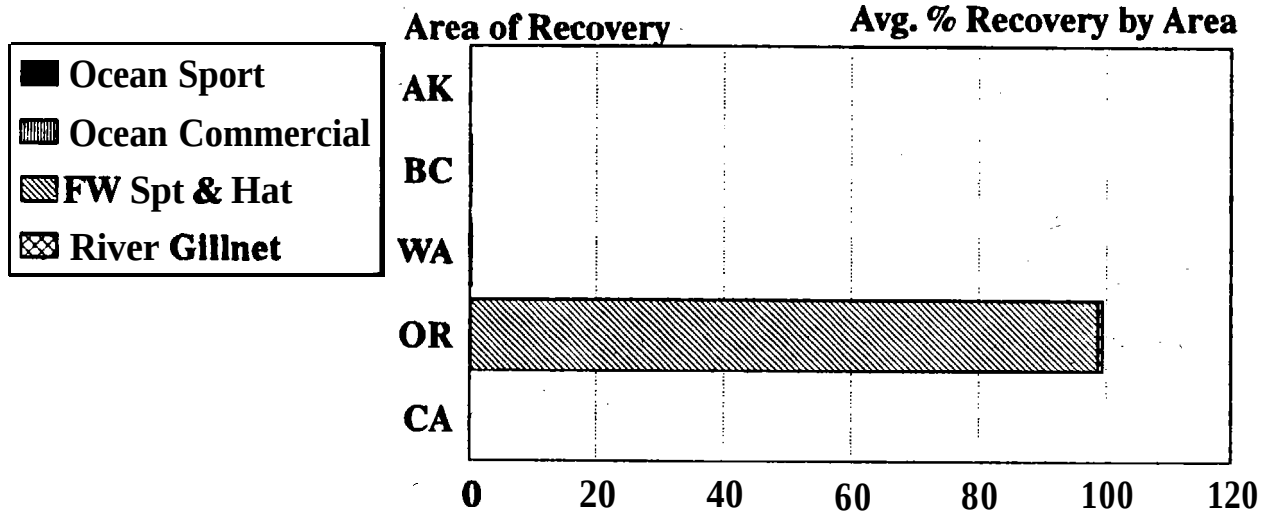
	AK	BC	'WA	OR	CA
Ocean Sport	0	0	15.8	6.5	14.2
Ocean Commercial	0	1.6	12.4	1.5	1.4
FW Spt & Hat				25.2	
River Gillnet				21.4	

Avg. 1.41 % Survival

Figure 43.

Round Butte (Deschutes Stock) Spring Chinook Released in Deschutes R.

1984 - 1988 Brood Year



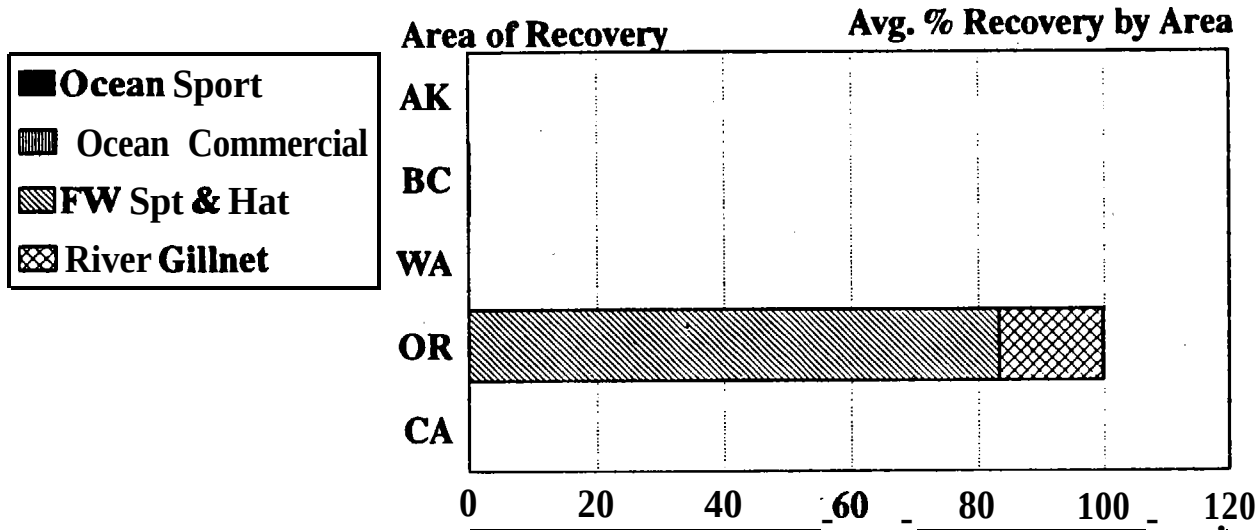
	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0	0.2	0.2	0.1	0
FW Spt & Hat				98.7	
River Gillnet				0.7	

Avg. 1.74 % Survival

Figure 44.

Oak Springs (Umatilla Stock) Summer Steelhead Released in Spring Creek (Umatilla River)

1987 - 1989 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0	0.2	0	0	0
FW Spt & Hat				83.4	
River Gillnet				16.5	

Avg. 0.41% Survival

Figure 45.

Irrigon Hatchery

Irrigon Hatchery is located on the Columbia River off Highway 730 near Irrigon. Irrigon rears and releases spring and fall chinook salmon, summer steelhead and rainbow trout.

The 1984 to 1988 brood-up river bright fall chinook reared at Irrigon hatchery and released in the Umatilla River survived at an average rate of 0.93 % and contributed primarily to the Alaska and British Columbia ocean commercial fisheries and the Columbia River freshwater sport and gillnet fisheries (Figure 46).

The 1986 to 1988 brood Rapid River stock spring chinook reared at Irrigon hatchery and released in the Lookingglass Creek survived at an average rate of >0.01 %.(Figure 47).

The 1985 to 1989 brood Imnaha stock summer steelhead reared at Irrigon hatchery and released in Little Sheep Creek survived at a rate of 0.56 % and contributed primarily to the Columbia River freshwater sport and gillnet fisheries (Figure 48).

Umatilla Harchery

Umatilla Hatchery, constructed in 1990 is located on the Columbia River adjacent to the Irrigon Hatchery. Umatilla Hatchery rears Columbia up-river bright fall chinook salmon and summer steelhead trout. Representative groups of these fish have been coded-wire tagged but no completed recovery data is available at the present time.

Lookingglass Hatchery

Lookingglass Hatchery is located on Lookingglass Creek, a tributary to the Grande Ronde River north of Elgin. Lookingglass Hatchery rears and releases spring chinook salmon.

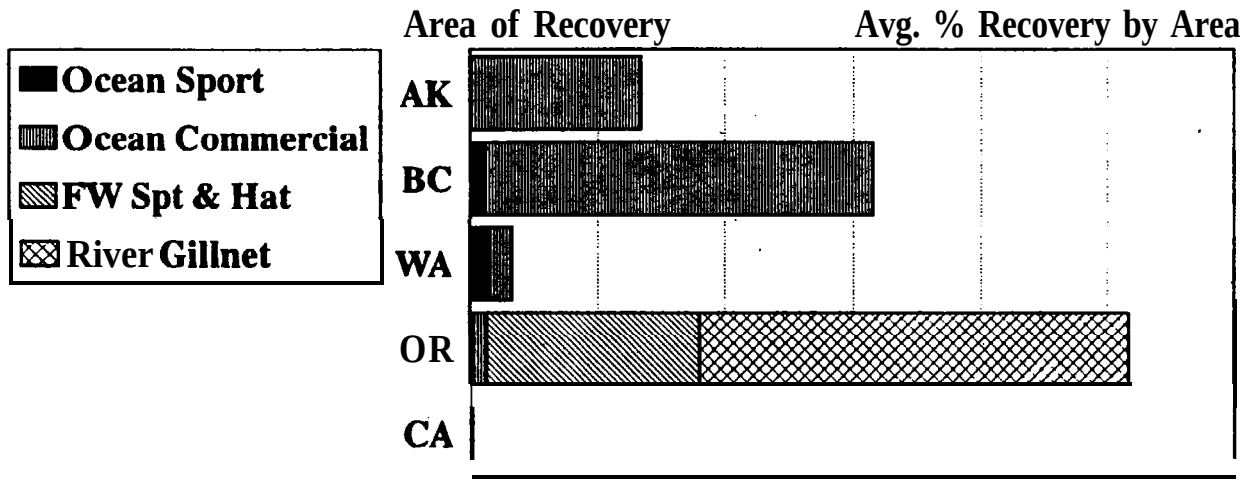
The 1985 to 1988 brood Rapid River stock spring chinook reared a Lookingglass hatchery and released in Lookingglass Creek survived at an average rate of 0.14 % and contributed primarily to the freshwater sport and Columbia river gillnet fisheries . (Figure 49).

The 1984 to 1986 brood Lookingglass stock spring chinook released in Lookingglass Creek survived at an average rate of 0.06 % and contributed to the freshwater sport and Columbia River gillnet fisheries (Figure 50)

The 1984 to 1988 brood Imnaha stock spring chinook released in the Imnaha river survived at an average rate of 0.21 % and contributed to the freshwater sport and Columbia River gillnet fisheries (Figure 51).

Umatilla URB Fall Chinook (Irrigon Hat) Released in Umatilla R

1984 - 1988 Brood Year



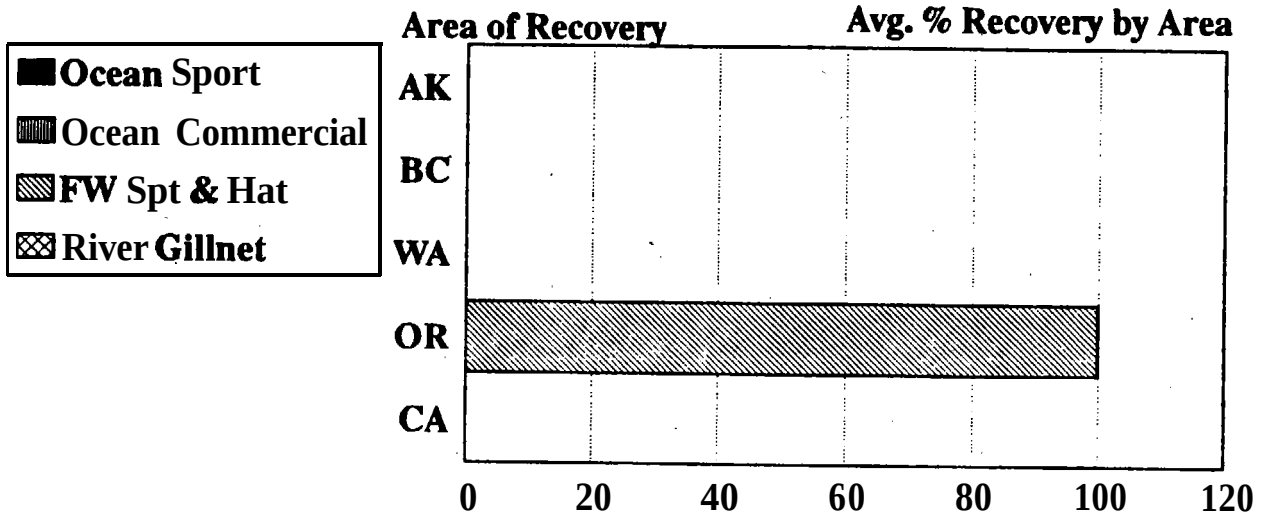
	AK	BC	WA	OR	CA
Ocean Sport	0.1	1.2	1.6	03	0.1
Ocean Commercial	133	303	1.7	1	0
FW Spt & Hat				16.7	
River Gillnet				33.7	

Avg. 0.93 % Survival

Figure 46.

Irrigon Hat. (Rapid R. Stock) Spring Chinook Released in Lookingglass Cr.

1986 - 1988 Brood Year



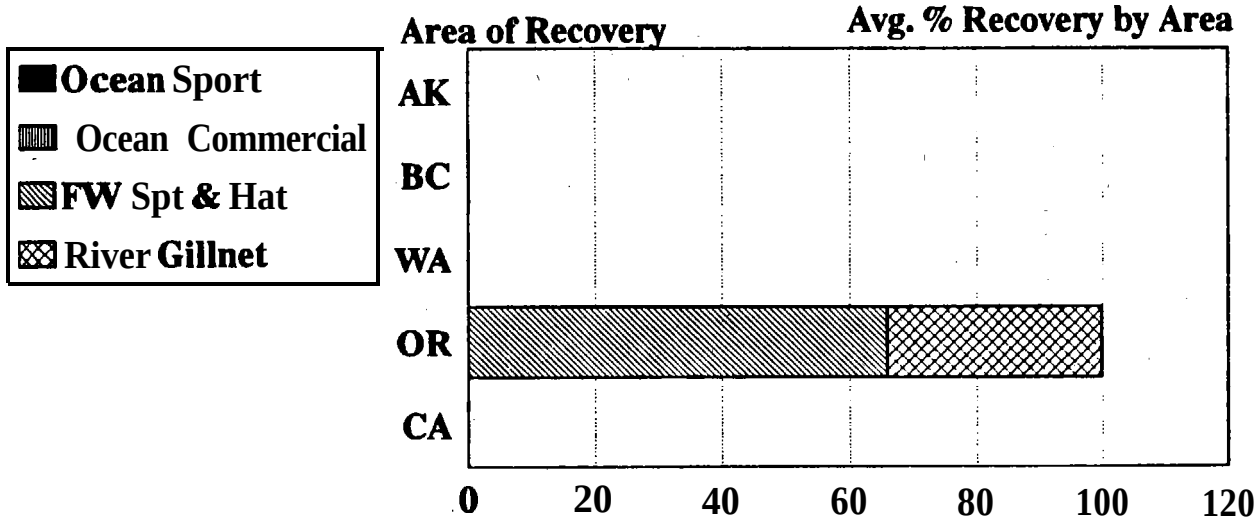
	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0	0	0	0	0
FW Spt & Hat				100	
River Gillnet				0	

Avg. >0.01 % Survival

Figure 47.

Irrigon (Imnaha -Stock) Summer Steelhead Released in Sheep Creek (Grande Ronde)

1985 - 1989 Brood Year



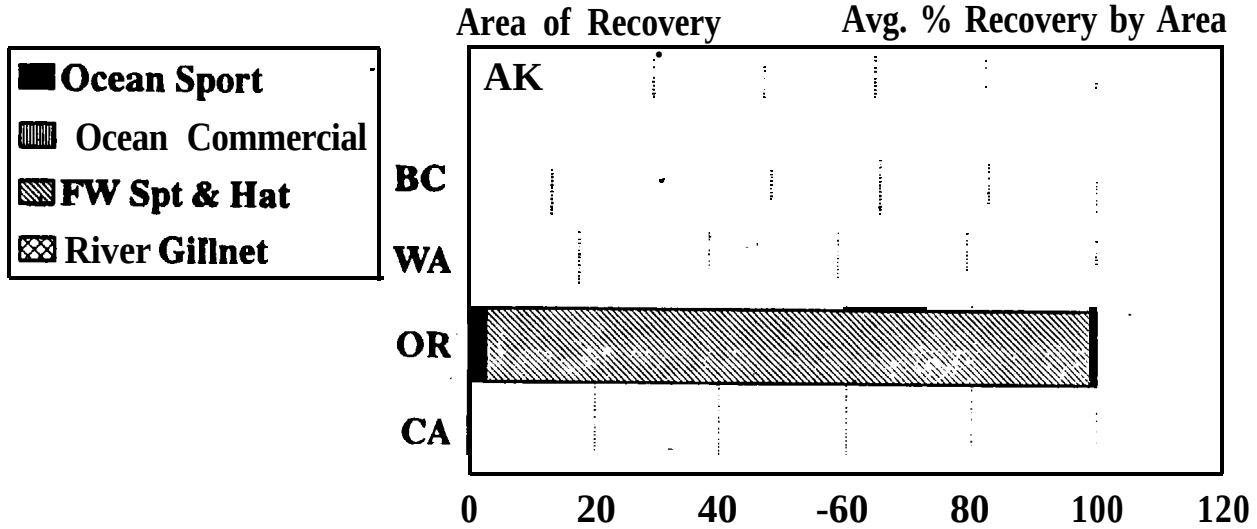
	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0	0.1	0	0	0
FW Spt & Hat				65.9	
River Gillnet				34	

Avg. 0.56 % Survival

Figure 48.

Rapid River Spring Chinook (Lookingglass Hat) Released in Lookingglass Cr.

1985 - 1988 Brood Year



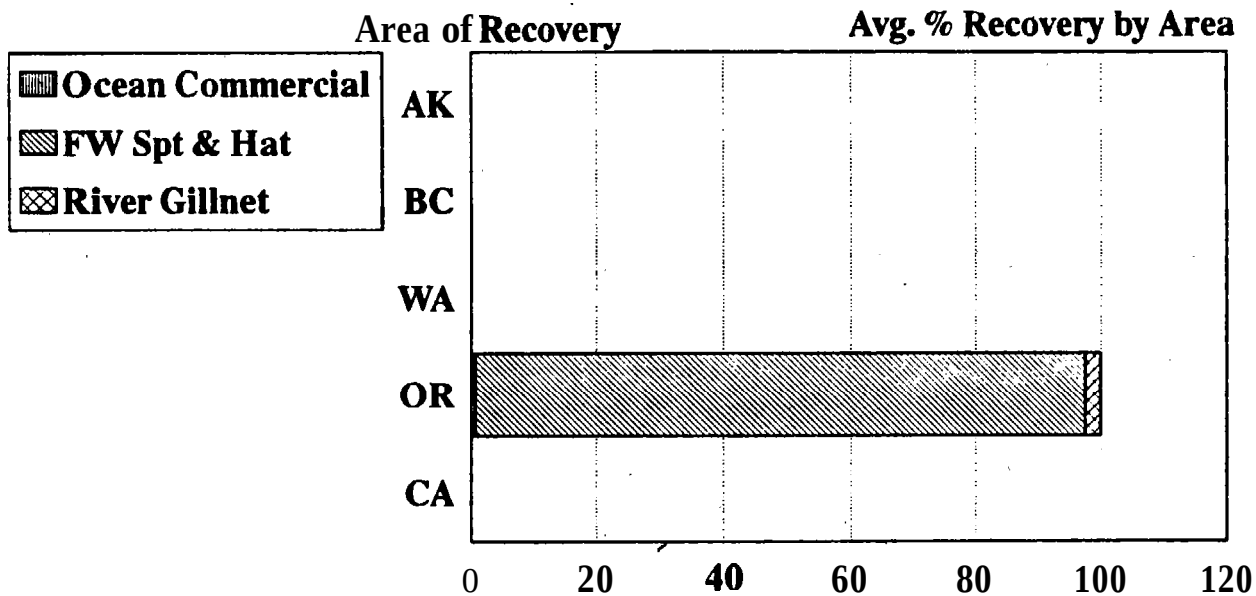
	AK	BC	WA	OR	CA
Ocean Sport	0	.0	0	2.8	0.1
Ocean Commercial	0	0	0	0	0
FW Spt & Hat				96.6	
River Gillnet				0.6	

Avg. 0.14 % Survival

Figure 49.

Lookingglass Spring Chinook Released in Lookingglass Creek

1984 - 1986 Brood Year



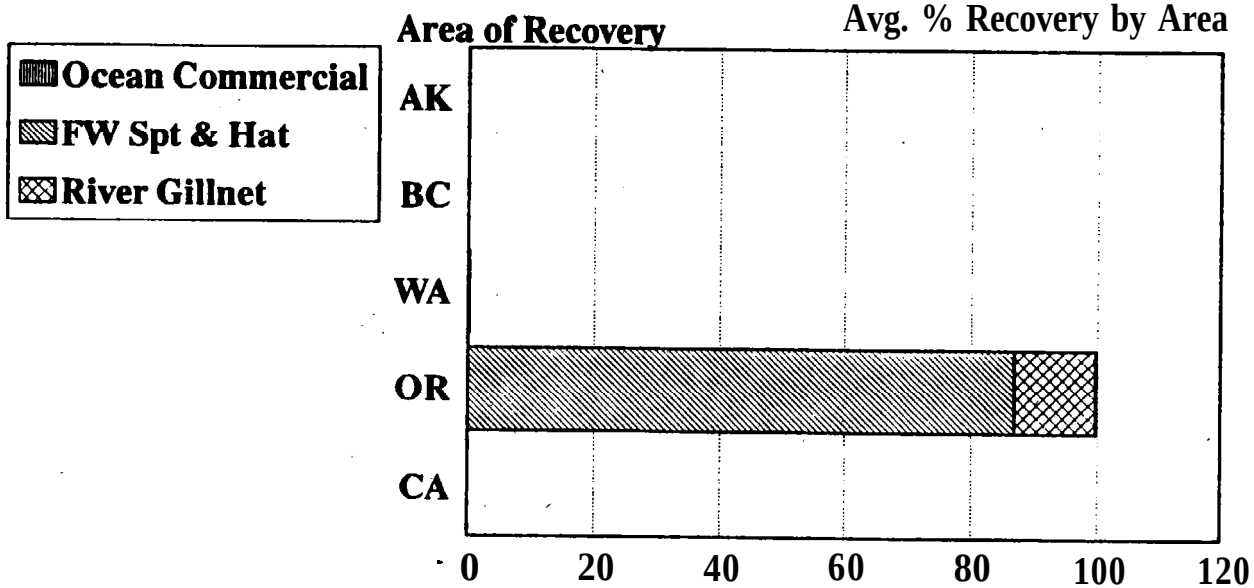
	AK	BC	WA	OR	CA
Ocean Commercial				0.6	
FW Spt & Hat				96.9	
River Gillnet				2.5	

Avg. 0.06 % Survival

Figure 50.

Imnaha Spring Chinook (Lookingglass Hat) Released in Imnaha R

1984 - 1988 Brood Year



	AK	BC	WA	OR	CA
Ocean Commercial			0.2		
FW Spt & Hat				86.9	
River Gillnet				12.8	

Avg. 0.21% Survival

Figure 51.

The 1984 to 1985 Carson stock spring chinook reared at Lookingglass hatchery and released in the Grande Ronde River survived at an average rate of 0.08 % and contributed primarily to the Columbia river freshwater sport and gillnet fisheries (Figure 52).

Wallowa Hachery

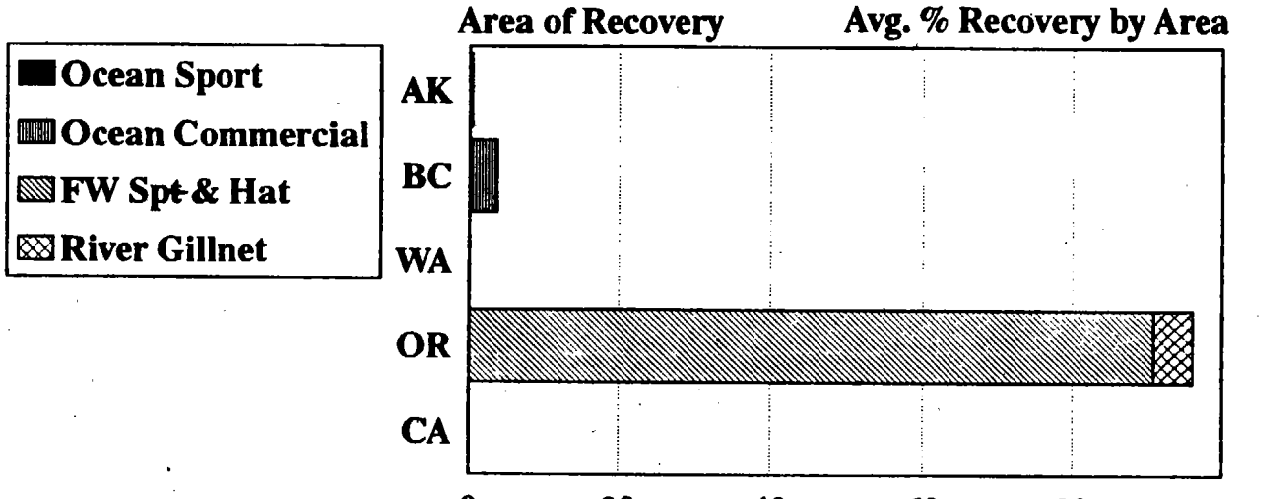
Wallowa Hatchery is located on the Wallowa River near Enterprise. The Wallowa Hatchery rears and releases summer steelhead and rainbow trout.

The 1985 to 1989 brood Wallowa stock summer steelhead reared at Irrigon hatchery, acclimated at Wallowa hatchery and released in Spring Creek (Wallowa River) survived at a rate of 0.77% and contributed primarily to the Columbia River freshwater sport and gillnet fisheries (Figure 53).

Rainbow trout are not tagged for evaluation.

Carson Spring Chinook (Lookingglass Hat) Released in Grande Ronde R

1984 - 1985 Brood Year



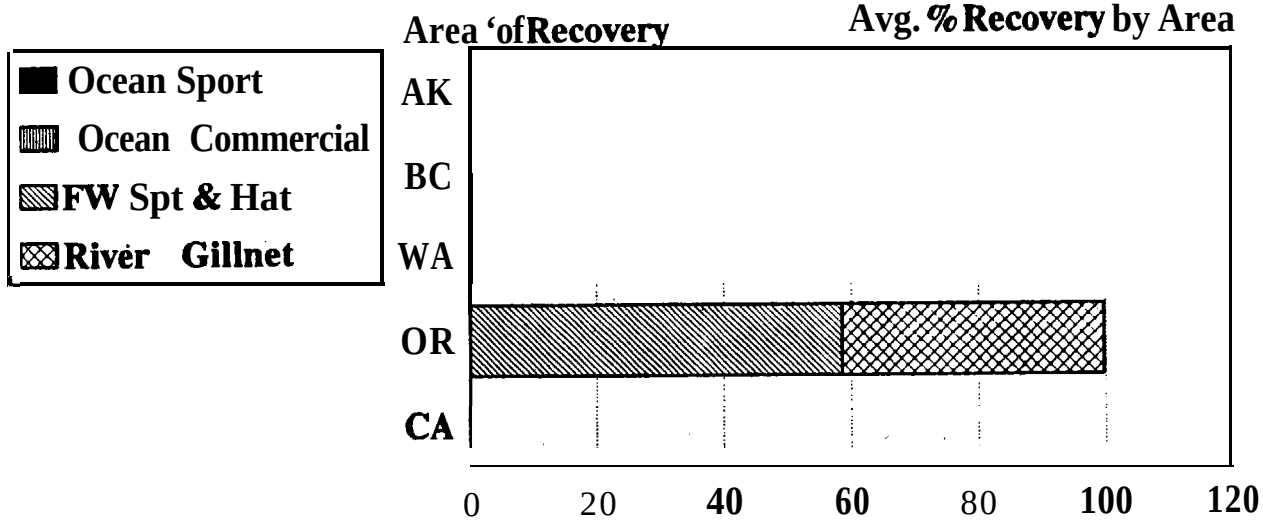
	AK	BC	WA	OR	CA
Ocean Sport	0.1				
Ocean Commercial	0.3	3.7			
FW Spt & Hat				90.9	
River Gillnet				5.1	

Avg. 0.08 % Survival

Figure 52.

Irrigon (Wallowa Stock) Summer S teelhead Released in Spring Creek (Wallowa River)

1985 - 1989 Brood Year



	AK	BC	WA	OR	CA
Ocean Sport	0	0	0	0	0
Ocean Commercial	0.1	0.2	0	0	0
FW Spt & Hat				58.6	
River Gillnet				41.2	

Avg. 0.77% Survival

Figure 53.

APPENDIX

Appendix Table 1 Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods, Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Fall Chinook

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
Bonneville	Chf	Tanner Cr	Tanner Cr	1984	317,321	6,998	552,982	877,301	2.77	0.0	0.0	2.2	26.8	6.2	11.2	0.5	6.3	20.0	26.5	0.1	0.2
Bonneville	Chf	Tanner Cr	Tanner Cr	1986	421,391	5,200	9,457,658	9,884,249	0.15	0.0	0.0	0.5	14.8	2.2	22.9	0.1	16.2	9.4	33.9	0.0	0.0
Bonneville	Chf	Tanner Cr	Tanner Cr	1987	315,679	3,998	9,785,318	10,104,995	0.02	0.0	0.0	0.4	24.2	2.3	43.6	0.0	0.7	8.1	20.8	0.0	0.0
Bonneville	Chf	Tanner Cr	Tanner Cr	1988	316,288	2,203	11,319,521	11,638,012	0.22	0.0	0.0	0.7	15.8	16.6	17.2	1.3	4.0	5.1	39.4	0.0	0.0
				Average	342,670	4,600	7,778,870	8,126,139	0.79	0.0	0.0	1.0	20.4	6.8	23.7	0.5	6.8	10.7	30.2	0.0	0.1
Bonneville	Chf	URB	Tanner Cr	1984	50,346	194	51,106	101,646	3.52	0.1	3.8	1.2	34.7	2.8	3.6	0.6	1.9	37.3	13.7	0.3	0.0
Bonneville	Chf	URB	Tanner Cr	1985	427,615	7,040	1,407,671	1,842,326	2.82	0.3	10.6	0.2	23.4	1.9	0.6	0.2	0.6	34.7	26.9	0.3	0.0
Bonneville	Chf	URB	Tanner Cr	1986	582,442	4,208	515,408	1,102,058	1.06	0.1	11.4	1.1	24.9	1.3	2.1	0.1	2.9	22.5	33.3	0.1	0.3
Bonneville	Chf	URB	Tanner Cr	1987	183,508	1,163	5,621,188	5,805,859	0.26	0.0	5.7	0.7	14.5	0.9	1.0	0.1	0.0	50.6	26.5	0.0	0.0
Bonneville	Chf	URB	Tanner Cr	1988	100,166	1,526	0	101,692	0.13	0.0	6.1	0.0	27.8	0.0	2.7	0.0	0.0	29.4	34.0	0.0	0.0
				Average	268,815	2,626	1,519,075	1,790,716	1.56	0.1	7.5	0.6	25.1	1.4	2.0	0.2	1.1	34.9	26.9	0.1	0.1
Bonneville	Chf	URB	Mid-Columbia R	1988	101,050	508	0	101,558	0.16	0.0	9.1	0.0	21.4	1.5	0.0	0.0	0.0	52.2	15.9	0.0	0.0
Bonneville	Chf	URB	Umatilla R	1984	237,594	5,939	3,030,639	3,274,172	0.87	0.2	12.8	0.6	22.0	1.1	2.0	0.0	1.6	49.6	9.6	0.0	0.3
Bonneville	Chf	URB	Umatilla R	1985	100,127	1,260	110,119	211,506	2.28	0.5	9.2	2.6	25.6	5.2	2.7	0.5	1.9	36.7	15.1	0.0	0.0
Bonneville	Chf	URB	Umatilla R	1986	158,960	1,146	40,235	200,341	2.77	0.1	7.6	0.7	27.8	4.1	3.4	1.0	2.3	23.8	29.1	0.3	0.0
Bonneville	Chf	Wash. Brights	Umatilla R	1987	86,408	4,281	3,400	94,089	0.49	0.3	10.3	3.5	25.5	7.6	2.1	0.2	3.7	27.8	18.6	0.0	0.4
				Average	145,772	3,157	796,098	945,027	1.60	0.3	10.0	1.9	25.2	4.5	2.6	0.4	2.4	34.5	18.1	0.1	0.2
Big Creek	Chf	Big Creek	Big Cr	1986	309,516	3,038	8,379,938	8,692,492	0.18	0.0	0.0	0.0	26.7	7.3	25.5	0.0	10.3	2.5	26.6	0.0	1.1
Big Creek	Chf	Big Creek	Big Cr	1987	313,024	4,032	8,534,864	8,851,920	0.05	0.0	0.0	1.6	25.7	25.8	9.0	2.3	3.3	2.1	30.3	0.0	0.0
Big Creek	Chf	Big Creek	Big Cr	1988	316,016	995	10,258,999	10,576,010	0.17	0.0	0.0	1.8	22.4	10.2	20.4	0.0	2.7	8.4	34.2	0.0	0.0
				Average	312,852	2,688	9,057,934	9,373,474	0.13	0.0	0.0	1.1	24.9	14.4	18.3	0.8	5.4	4.3	30.4	0.0	0.4
Big Creek	Chf	Rogue R	Big Cr	1984	98,850	2,766	0	101,616	3.74	0.0	0.0	0.1	2.6	4.0	3.8	1.7	48.5	18.7	12.5	0.2	8.0
Big Creek	Chf	Rogue R	Big Cr	1985	145,544	244	244	146,032	2.08	0.0	0.0	0.2	2.8	2.7	1.6	3.3	54.6	8.6	14.7	0.4	11.1
Big Creek	Chf	Rogue R	Big Cr	1986	156,574	590	1,180	158,344	2.26	0.0	0.0	0.6	2.9	8.4	2.1	3.8	46.9	3.2	26.3	2.0	3.9
Big Creek	Chf	Rogue R	Big Cr	1987	148,571	5,293	0	153,864	2.25	0.0	0.0	0.1	3.1	10.9	2.0	4.5	42.0	2.5	31.7	0.2	3.1
Big Creek	Chf	Rogue R	Big Cr	1988	155,334	531	0	155,865	1.33	0.0	0.0	0.1	3.2	7.8	3.8	4.1	31.3	4.6	40.6	1.4	3.1
				Average	140,975	1,885	285	143,145	2.33	0.0	0.0	0.2	2.9	6.8	2.7	3.5	44.7	7.5	25.2	0.8	5.8

Appendix Table 1. Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods; Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Fall Chinook

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
Irrigon	Chf	URB	Umatilla R	1984	86,396	2,214	116,205	206,815	3.18	0.1	4.9	2.0	35.5	4.0	6.8	0.8	1.8	34.6	9.6	0.0	0.0
Irrigon	Chf	URB	Umatilla R	1985	209,145	4,658	1,815,799	2,029,602	0.50	0.0	9.1	0.9	21.6	1.2	0.4	0.4	1.6	43.8	21.2	0.0	0.0
Irrigon	Chf	Wash. Brights	Umatilla R	1986	122,996	4,589	1,351,245	1,478,830	0.81	0.3	13.8	0.8	27.1	1.4	1.3	0.4	1.3	37.4	15.8	0.5	0.0
Irrigon	Chf	Wash. Brights	Umatilla R	1987	198,285	0	1,688,472	1,886,757	0.07	0.0	20.0	0.0	35.0	1.4	0.0	0.0	0.0	25.0	18.6	0.0	0.0
Irrigon	Chf	Wash. Brights	Umatilla R	1988	307,492	8,703	2,234,472	2,550,667	0.10	0.0	18.7	2.4	32.5	0.0	0.2	0.1	0.1	27.8	18.3	0.0	0.0
				Average	185,263	4,033	1,441,239	1,630,534	0.93	0.1	13.3	1.2	30.3	1.6	1.7	0.3	1.0	33.7	16.7	0.1	0.0
Klaskanine	Chf	Big Creek	Klaskanine R, N Fk	1986	194,657	10,463	3,555,480	3,760,600	0.15	0.0	0.2	0.0	38.6	1.4	13.1	0.2	6.9	30.0	6.7	0.3	0.3
Klaskanine	Chf	Big Creek	Klaskanine R, N Fk	1987	203,546	1,857	3,548,953	3,754,356	0.01	0.0	0.0	2.2	0.0	0.0	34.8	0.0	0.0	50.1	12.9	0.0	0.0
Klaskanine	Chf	Big Creek	Klaskanine R, N Fk	1988	209,187	3,605	3,818,255	4,031,047	0.09	0.0	0.0	3.2	48.7	9.7	11.2	0.0	4.8	10.4	12.1	0.0	0.0
				Average	202,463	5,308	3,640,896	3,848,668	0.08	0.0	0.1	1.8	29.2	3.7	19.7	0.1	4.6	30.2	10.6	0.1	0.1
S F Klask Pd	Chf	Rogue R	Klaskanine R, S Fk	1984	49,936	864	31,057	81,857	7.49	0.0	0.1	0.1	2.2	5.8	2.8	1.5	45.3	26.0	3.5	0.4	12.2
S F Klask Pd	Chf	Rogue R	Klaskanine R, S Fk	1985	30,069	2,848	218,545	251,462	0.81	0.0	0.0	0.0	2.4	0.0	0.8	4.6	55.2	30.8	3.3	1.4	1.6
S F Klask Pd	Chf	Rogue R	Klaskanine R, S Fk	1986	2,760	20	17,220	20,000	0.36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	30.0	10.0	0.0	0.0
S F Klask Pd	Chf	Rogue R	Klaskanine R, S Fk	1987	26,481	161	53,128	79,770	3.07	0.0	0.0	0.0	1.5	6.4	3.7	3.0	46.6	27.5	4.7	1.4	3.5
				Average	27,312	973	79,988	108,272	2.93	0.0	0.0	0.0	1.5	3.6	1.8	2.3	51.8	28.6	5.4	0.8	4.3
S F Klask Pd	Chf	Tanner Cr	Klaskanine R, S Fk	1984	101,415	1,036	2,892,321	2,994,772	1.67	0.1	0.4	4.1	35.5	5.7	10.4	0.3	5.5	32.4	5.7	0.0	0.0
S F Klask Pd	Chf	Tanner Cr	Klaskanine R, S Fk	1985	99,043	5,563	2,904,840	3,009,466	0.12	0.0	0.0	0.0	54.4	4.0	3.5	0.0	3.4	16.9	17.8	0.0	0.0
S F Klask Pd	Chf	Big Creek	Klaskanine R, S Fk	1986	135,975	6,576	1,199,910	1,342,461	0.08	0.0	0.0	12.2	28.1	3.8	0.8	0.0	7.5	26.4	21.4	0.0	0.0
S F Klask Pd	Chf	Big Creek	Klaskanine R, S Fk	1987	139,660	11,755	2,928,035	3,079,450	0.04	0.0	0.0	0.0	29.6	0.0	11.1	0.0	13.5	40.6	5.1	0.0	0.0
				Average	119,023	6,238	2,481,277	2,606,537	0.48	0.0	0.1	4.1	36.9	3.4	6.5	0.1	7.5	29.1	12.5	0.0	0.0
Stayton Pond	Chf	M Willamette R	Willamette R	1984	180,562	13,543	4,340,089	4,534,194	3.42	0.0	0.1	3.0	30.7	7.0	10.5	0.5	5.4	18.0	24.1	0.2	0.5
Stayton Pond	Chf	Tanner Cr	Willamette R	1985	183,215	12,040	4,738,291	4,933,546	0.19	0.0	0.0	0.0	27.0	7.5	18.1	0.0	5.3	8.1	34.1	0.0	0.0
Stayton Pond	Chf	Tanner Cr	Willamette R	1986	196,944	1,733	5,570,245	5,768,922	0.09	0.0	0.0	0.0	11.8	3.6	23.7	0.0	13.7	0.0	46.1	1.2	0.0
Stayton Pond	Chf	Tanner Cr	Willamette R	1987	193,340	5,149	4,859,788	5,058,277	0.13	0.0	0.0	1.1	28.0	6.0	10.9	1.7	3.6	0.0	48.7	0.0	0.0
Stayton Pond	Chf	Tanner Cr	Willamette R	1988	173,719	2,777	4,418,636	4,595,132	0.16	0.0	0.0	0.0	18.1	10.8	8.9	3.3	3.2	1.7	54.0	0.0	0.0
				Average	185,556	7,048	4,785,410	4,978,014	0.60	0.0	0.0	0.8	23.1	7.0	14.4	1.1	6.2	5.6	41.4	0.3	0.1

Appendix Table 1. Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods. Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Spring Chinook

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
Bonneville	Chs	Carson	Hood R, W Fk	1986	50,744	1,015	98,180	149,939	0.33	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	5.3	92.3	0.0	0.0
Bonneville	Chs	Lookingglass Cr	Hood R, W Fk	1987	52,248	454	81,615	134,317	0.07	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Bonneville	Chs	Lookingglass Cr	Hood R, W Fk	1988	52,891	613	139,689	193,193	0.18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1	96.9	0.0	0.0
				Average	51,961	694	106,495	159,150	0.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.8	96.4	0.0	0.0
Bonneville	Chs	Carson	Lookingglass Cr	1984	145,231	9,038	248	154,517	0.08	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	98.8	0.0	0.0
Bonneville	Chs	Carson	Umatilla R	1986	156,649	4,100	47,360	208,109	0.31	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	96.8	0.0	0.0
Bonneville	Chs	Lookingglass Cr	Umatilla R	1987	233,709	1,465	2,705	237,879	0.15	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	99.8	0.0	0.0
Bonneville	Chs	Lookingglass Cr	Umatilla R	1988	320,377	2,402	73,596	396,375	0.30	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	6.7	93.2	0.0	0.0
				Average	236,912	2,656	41,220	280,788	0.25	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.3	96.6	0.0	0.0
Clackamas	Chs	Clackamas R E	Clackamas R	1984	57,522	3,284	388,520	449,326	0.28	0.0	5.5	2.4	10.1	0.0	0.0	0.0	0.0	2.6	79.4	0.0	0.0
Clackamas	Chs	Clackamas R E	Clackamas R	1985	78,409	4,789	694,890	778,088	0.07	0.0	22.9	0.0	1.2	0.0	0.0	0.0	0.0	15.9	60.0	0.0	0.0
Clackamas	Chs	Clackamas R E	Clackamas R	1986	69,409	2,498	0	71,907	0.51	0.0	8.5	0.3	2.6	0.0	0.8	0.0	0.0	13.3	74.6	0.0	0.0
Clackamas	Chs	Clackamas R E	Clackamas R	1987	61,871	1,547	1,065,524	1,128,942	0.66	0.0	10.6	0.0	2.3	0.0	0.0	0.0	0.0	2.9	83.9	0.0	0.0
Clackamas	Chs	Clackamas R E	Clackamas R	1988	91,832	1,739	1,190,682	1,284,253	1.17	0.3	10.6	1.8	7.2	2.6	7.8	1.9	0.3	0.3	67.3	0.0	0.0
				Average	71,809	2,771	667,923	742,503	0.56	0.1	11.7	0.9	4.7	0.5	1.7	0.4	0.1	7.0	73.0	0.0	0.0
Clackamas	Chs	S Santiam R	Clackamas R	1986	15,553	285	0	15,838	2.30	0.0	10.9	0.0	4.6	1.7	0.0	0.0	0.0	14.0	68.6	0.0	0.0
Clackamas	Chs	M Willamette R	Clackamas R	1987	15,417	632	287,904	303,953	1.01	0.6	10.9	0.0	2.6	0.0	0.0	0.0	0.0	5.8	80.1	0.0	0.0
				Average	15,485	459	143,952	159,896	1.66	0.3	10.9	0.0	3.7	0.9	0.0	0.0	0.0	9.9	74.4	0.0	0.0
Lookingglass	Chs	Carson	Lookingglass Cr	1984	351,859	10,656	352,845	715,360	0.05	0.2	0.5	0.0	7.4	0.0	0.0	0.0	0.0	6.6	85.3	0.0	0.0
Lookingglass	Chs	Carson	Big Canyon Cr	1985	78,857	1,717	3,720	84,294	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	96.4	0.0	0.0
				Average	215,358	6,187	178,283	399,827	0.08	0.1	0.3	0.0	3.7	0.0	0.0	0.0	0.0	5.1	90.9	0.0	0.0
Lookingglass	Chs	Imnaha R	Imnaha R	1984	34,563	441	260	35,264	0.23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.0	65.0	0.0	0.0
Lookingglass	Chs	Imnaha R	Lookingglass Cr	1985	105,354	1,708	16,471	123,533	0.14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.4	72.6	0.0	0.0
Lookingglass	Chs	Imnaha R	Imnaha R	1986	186,350	11,331	1,825	199,506	0.17	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.5	98.3	0.0	0.0
Lookingglass	Chs	Imnaha R	Imnaha R	1987	134,591	7,447	282	142,320	0.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Lookingglass	Chs	Imnaha R	Imnaha R	1988	226,268	2,183	21,344	249,795	0.37	0.0	0.0	0.0	0.0	0.2	1.0	0.0	0.0	0.3	98.6	0.0	0.0
				Average	137,425	4,622	8,036	150,084	0.21	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	12.8	86.9	0.0	0.0

Appendix Table 1 Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods; Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Spring Chinook

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
Lookingglass	Chs	Lookingglass Cr	Lookingglass Cr	1984	41,973	107	5,628	47,708	0.11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Lookingglass	Chs	Lookingglass Cr	Lookingglass Cr	1985	401,705	7,830	172,557	582,092	0.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	7.6	90.7	0.0	0.0
Lookingglass	Chs	Lookingglass Cr	Lookingglass Cr	1986	86,213	870	13,835	100,918	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
				Average	176,630	2,936	64,007	243,573	0.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	2.5	96.9	0.0	0.0
Lookingglass	Chs	Rapid R (Idaho)	Lookingglass Cr	1985	99,742	494	292,880	393,116	0.04	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Lookingglass	Chs	Rapid R (Idaho)	Lookingglass Cr	1986	325,705	9,127	3,327	338,159	0.12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	97.3	0.2	0.0
Lookingglass	Chs	Rapid R (Idaho)	Lookingglass Cr	1987	342,199	3,937	13,538	359,674	0.04	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	88.9	0.0	0.0
Lookingglass	Chs	Rapid R (Idaho)	Lookingglass Cr	1988	171,234	4,139	444,266	619,639	0.35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
				Average	234,720	4,424	188,503	427,647	0.14	0.0	0.0	0.0	0.0	0.0	0.0	2.8	0.0	0.6	96.6	0.1	0.0
Irrigon	Chs	Rapid R (Idaho)	Lookingglass Cr	1986	122,906	1,770	49,298	173,974	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Irrigon	Chs	Rapid R (Idaho)	Lookingglass Cr	1987	125,924	2,869	12,289	141,082	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Irrigon	Chs	Rapid R (Idaho)	Lookingglass Cr	1988	123,168	3,427	105	126,700	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				Average	123,999	2,689	20,564	147,252	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Marion Forks	Chs	N Santiam R	Santiam R & N Fk	1984	31,494	545	161,166	193,205	1.33	1.0	18.8	0.0	18.2	0.0	1.8	0.0	0.0	18.5	41.8	0.0	0.0
Marion Forks	Chs	N Santiam R	Santiam R & N Fk	1985	31,381	1,105	58,960	91,446	0.91	0.4	0.0	0.0	4.2	0.9	3.8	0.0	0.0	18.8	68.1	0.0	3.9
Marion Forks	Chs	N Santiam R	Santiam R & N Fk	1986	26,055	4,260	159	30,474	1.82	0.2	10.7	0.8	7.0	0.8	1.5	0.0	0.0	12.0	67.0	0.0	0.0
Marion Forks	Chs	N Santiam R	Santiam R & N Fk	1987	30,076	182	0	30,258	1.50	0.2	12.8	0.0	2.7	0.0	1.8	0.0	0.0	6.0	76.6	0.0	0.0
Marion Forks	Chs	N Santiam R	Santiam R & N Fk	1988	31,918	669	417,764	450,351	1.17	0.0	3.9	1.0	3.4	0.0	4.7	0.0	0.2	0.6	86.2	0.0	0.0
				Average	30,185	1,352	127,610	159,147	1.35	0.4	9.2	0.4	7.1	0.3	2.7	0.0	0.0	11.2	67.9	0.0	0.8
Marion Forks	Chs	S Santiam R	Santiam R & N Fk	1984	63,268	723	50,783	114,794	1.10	0.1	6.4	0.6	35.6	0.5	3.3	0.0	0.0	8.0	45.1	0.3	0.0
Marion Forks	Chs	N Santiam R	Santiam R, S Fk	1985	32,173	941	59,117	92,231	0.33	0.0	3.8	0.0	0.0	0.0	0.0	0.0	2.6	27.6	66.0	0.0	0.0
Marion Forks	Chs	N Santiam R	Santiam R, S Fk	1986	25,600	5,581	0	31,181	1.93	0.0	9.5	0.8	3.9	0.0	0.2	0.0	0.0	9.5	76.1	0.0	0.0
Marion Forks	Chs	N Santiam R	Santiam R, S Fk	1987	29,305	446	0	29,751	1.54	0.0	9.6	0.0	3.6	0.4	4.4	0.0	0.0	5.1	76.9	0.0	0.0
				Average	29,026	2,323	19,706	51,054	1.27	0.0	7.6	0.3	2.5	0.1	1.5	0.0	0.9	14.1	73.0	0.0	0.0

Appendix Table 1. Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Spring Chinook

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
McKenzie	Chs	McKenzie R	McKenzie R	1984	56,906	5,169	241	62,316	0.99	0.2	12.0	0.0	10.3	0.0	1.8	0.0	0.0	9.5	66.2	0.0	0.0
McKenzie	Chs	McKenzie R	McKenzie R	1985	58,030	4,244	330,223	392,497	1.11	0.2	2.6	0.0	7.6	0.3	1.0	0.0	0.0	26.6	61.7	0.0	0.0
McKenzie	Chs	McKenzie R	McKenzie R	1986	58,352	3,098	0	61,450	1.56	0.1	11.6	0.3	3.0	0.0	0.5	0.0	0.0	14.1	70.4	0.0	0.0
McKenzie	Chs	McKenzie R	McKenzie R	1987	61,084	1,597	658,487	721,168	1.13	0.3	6.6	0.0	5.4	0.0	0.2	0.1	0.0	9.1	78.3	0.0	0.0
McKenzie	Chs	McKenzie R	McKenzie R	1988	61,158	1,610	182,344	245,112	0.61	0.1	21.4	0.1	4.3	1.8	1.9	0.0	0.0	0.2	69.1	0.0	1.1
				Average	59,106	3,144	234,259	296,509	1.08	0.2	10.8	0.1	6.1	0.4	1.1	0.0	0.0	11.9	69.1	0.0	0.2
Round Butte	Chs	Deschutes R	Deschutes R	1984	125,615	2,835	433	128,883	1.40	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.2	1.4	97.8	0.0	0.0
Round Butte	Chs	Deschutes R	Deschutes R	1985	112,898	4,267	148,697	265,862	2.06	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.1	98.6	0.0	0.0
Round Butte	Chs	Deschutes R	Deschutes R	1986	109,809	5,533	150	115,492	2.06	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.2	99.6	0.0	0.0
Round Butte	Chs	Deschutes R	Deschutes R	1987	112,843	6,210	0	119,053	1.43	0.0	0.0	0.0	0.5	0.0	0.9	0.0	0.0	0.6	98.1	0.0	0.0
Round Butte	Chs	Deschutes R	Deschutes R	1988	122,245	2,355	134,847	259,447	1.72	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	99.6	0.0	0.0
				Average	116,682	4,240	56,825	177,747	1.74	0.0	0.0	0.0	0.2	0.0	0.2	0.0	0.1	0.7	98.7	0.0	0.0
South Santiam	Chs	S Santiam R	Santiam R, S Fk	1984	54,566	3,123	116,750	174,439	0.80	0.1	9.3	1.3	13.2	0.0	2.0	0.0	0.0	15.2	59.0	0.0	0.0
South Santiam	Chs	S Santiam R	Santiam R, S Fk	1985	25,956	106	119,373	145,435	1.38	0.0	8.2	3.8	8.0	0.0	0.6	0.6	0.0	14.8	63.9	0.0	0.0
South Santiam	Chs	S Santiam R	Santiam R, S Fk	1987	24,640	357	484	25,481	1.27	0.0	10.5	0.0	6.1	0.3	0.6	0.0	1.0	9.9	71.6	0.0	0.0
Dexter Ponds	Chs	S Santiam R	Santiam R, S Fk	1988	64,018	1,367	705,550	770,935	0.20	0.0	9.9	1.3	12.0	0.0	0.0	0.0	0.0	0.0	76.8	0.0	0.0
				Average	42,295	1,238	235,539	279,073	0.91	0.0	9.5	1.6	9.8	0.1	0.8	0.2	0.3	10.0	67.8	0.0	0.0
South Santiam	Chs	S Santiam R	Willamette R	1986	23,728	1,647	0	25,375	1.17	0.0	9.3	0.0	4.9	0.0	2.0	0.0	1.2	19.3	63.4	0.0	0.0
South Santiam	Chs	S Santiam R	Willamette R	1987	25,178	203	86,312	111,693	1.00	0.0	19.1	0.0	6.0	0.0	0.0	0.0	0.8	15.5	58.7	0.0	0.0
				Average	24,453	925	43,156	68,534	1.09	0.0	14.2	0.0	5.5	0.0	1.0	0.0	1.0	17.4	61.1	0.0	0.0
S F Klask Pd	Chs	M Willamette R	Klaskanine R, S Fk	1988	28,050	710	87,319	116,079	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
S F Klask Pd	Chs	M Willamette R	Youngs R	1988	52,584	471	110,458	163,513	0.43	0.0	7.7	0.0	0.3	0.0	0.2	0.0	0.0	62.1	29.7	0.0	0.0
Willamette	Chs	M Willamette R	Willamette R, M Fk	1984	105,496	3,064	636,877	745,457	0.97	0.0	5.3	0.0	6.7	0.1	1.8	0.0	0.1	27.8	58.3	0.0	0.0
Willamette	Chs	M Willamette R	Willamette R, M Fk	1985	165,003	4,707	1,137,547	1,307,257	2.08	0.1	4.7	0.0	3.4	0.2	0.1	0.4	0.0	18.3	72.9	0.0	0.0
Willamette	Chs	M Willamette R	Willamette R, M Fk	1986	158,918	7,682	7,970	174,570	1.23	0.0	5.4	0.1	3.4	0.4	1.5	0.0	0.1	7.8	80.9	0.4	0.0
Willamette	Chs	M Willamette R	Willamette R, M Fk	1987	180,016	2,761	887,265	1,070,042	0.70	0.1	5.8	0.4	2.3	0.2	0.2	0.0	0.1	3.4	87.9	0.0	0.0
Willamette	Chs	M Willamette R	Willamette R, M Fk	1988	94,094	682	1,163,420	1,258,396	1.06	0.0	5.7	0.0	2.8	0.0	0.6	0.0	0.0	2.2	88.8	0.0	0.0
				Average	140,705	3,823	766,616	911,144	1.21	0.0	5.3	0.1	3.7	0.2	0.8	0.1	0.1	11.9	77.8	0.1	0.0
Bonneville	Chsu	URB	Tanner Cr	1986	100,456	2,311	328,451	408,796	0.22	0.9	14.9	4.6	19.3	0.0	1.6	0.0	2.0	27.1	29.5	0.0	0.0

Appendix Table 1 Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods; Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Coho

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
Bonneville	Coho	Tanner Cr	Tanner Cr	1986	78,934	0	1,805,149	1,884,083	6.91	0.0	0.0	0.0	2.7	10.5	1.9	12.5	20.9	20.2	29.5	1.0	0.8
Bonneville	Coho	Tanner Cr	Tanner Cr	1987	83,194	1,415	1,674,393	1,759,002	1.65	0.0	0.0	0.0	6.0	17.3	4.2	14.7	15.9	6.2	28.7	2.9	4.2
Bonneville	Coho	Tanner Cr	Tanner Cr	1988	76,489	2,742	1,570,942	1,650,173	3.14	0.0	0.0	0.0	1.7	13.9	0.6	11.8	13.1	22.3	32.3	1.8	2.6
Bonneville	Coho	Tanner Cr	Tanner Cr	1989	69,363	453	1,654,589	1,724,405	2.05	0.0	0.0	0.0	0.9	18.4	1.2	25.4	5.9	2.3	45.9	0.1	0.0
Bonneville	Coho	Tanner Cr	Tanner Cr	1990	82,442	1,236	2,092,987	2,176,665	0.88	0.0	0.0	0.0	1.3	13.8	1.3	14.0	0.0	7.8	56.6	5.3	0.0
				Average	78,084	1,169	1,759,612	1,838,866	2.93	0.0	0.0	0.0	2.5	14.8	1.8	15.7	11.2	11.8	38.5	2.2	1.5
Big Creek	Coho	Big Creek	Big Cr	1986	70,091	1,785	517,246	589,122	8.10	0.0	0.1	0.0	2.8	8.4	1.6	17.6	22.9	21.5	21.1	2.4	1.4
Big Creek	Coho	Big Creek	Big Cr	1987	100,126	1,297	484,641	586,064	2.40	0.0	0.0	0.0	4.4	19.3	2.3	19.4	15.4	6.3	29.5	1.8	1.4
Big Creek	Coho	Big Creek	Big Cr	1988	108,636	2,100	523,697	634,433	4.21	0.0	0.0	0.0	1.9	20.8	1.3	20.3	14.5	10.7	27.4	1.9	1.2
Big Creek	Coho	Big Creek	Big Cr	1989	101,837	3,110	529,835	634,782	2.82	0.0	0.0	0.0	0.5	11.0	0.2	31.4	12.0	5.4	38.8	0.4	0.5
Big Creek	Coho	Big Creek	Big Cr	1990	53,983	600	499,342	553,925	0.21	0.0	0.0	0.0	2.0	38.6	0.0	14.4	0.0	11.9	31.4	1.7	0.0
				Average	86,935	1,778	510,952	599,665	3.55	0.0	0.0	0.0	2.3	19.6	1.1	20.6	13.0	11.2	29.7	1.6	0.9
Cascade	Coho	Tanner Cr	Umatilla R	1986	58,068	5,246	140,151	203,465	4.11	0.0	0.0	0.3	4.0	12.5	4.0	15.5	25.2	18.0	16.6	2.4	1.6
Cascade	Coho	Tanner Cr	Umatilla R	1987	80,217	2,672	150,380	233,269	0.87	0.0	0.0	0.0	1.8	11.9	6.0	18.0	16.8	5.3	20.8	7.4	11.9
Cascade	Coho	Tanner Cr	Umatilla R	1988	82,140	1,304	703,188	786,632	3.14	0.0	0.0	0.0	1.9	16.9	1.4	15.1	13.0	25.1	18.6	4.3	3.7
Cascade	Coho	Tanner Cr	Umatilla R	1989	75,329	3,319	830,778	909,426	0.16	0.0	0.0	0.0	0.0	22.0	0.7	27.2	3.3	16.6	30.2	0.0	0.0
Cascade	Coho	Tanner Cr	Umatilla R	1990	83,071	1,811	876,504	961,386	0.81	0.0	0.0	0.0	1.2	14.1	2.7	12.1	0.0	26.1	37.4	6.5	0.0
				Average	75,765	2,870	540,200	618,836	1.82	0.0	0.0	0.1	1.8	15.5	3.0	17.6	11.7	18.2	24.7	4.1	3.4
Cascade	Coho	Tanner Cr	Yakima R	1986	66,596	3,467	110,885	180,948	1.58	0.0	0.0	0.6	6.0	17.3	2.8	17.2	31.0	18.9	2.3	3.2	0.6
Cascade	Coho	Tanner Cr	Yakima R	1987	81,518	685	136,560	218,763	0.93	0.0	0.0	0.0	2.9	22.8	8.7	24.3	13.1	7.2	8.1	6.5	6.5
Cascade	Coho	Tanner Cr	Yakima R	1988	81,531	1,304	562,655	645,490	1.99	0.0	0.0	0.0	0.5	20.8	1.0	16.3	14.3	23.8	15.4	4.3	3.7
Cascade	Coho	Tanner Cr	Yakima R	1989	77,932	1,015	611,484	690,431	0.15	0.0	0.0	0.0	1.6	24.6	0.0	30.8	10.3	10.4	22.3	0.0	0.0
Cascade	Coho	Tanner Cr	Yakima R	1990	82,793	1,432	613,582	697,807	0.07	0.0	0.0	0.0	0.0	23.1	9.2	43.2	0.0	15.7	4.3	4.4	0.0
				Average	78,074	1,581	407,033	486,688	0.94	0.0	0.0	0.1	2.2	21.7	4.3	26.4	13.7	15.2	10.5	3.7	2.2
Klaskanine	Coho	Klaskanine R	Klaskanine R, N Fk	1986	32,307	0	807,451	839,758	4.38	0.0	0.0	0.5	6.1	9.6	0.0	12.8	24.2	32.1	7.3	4.7	2.8
Klaskanine	Coho	Klaskanine R	Klaskanine R, N Fk	1987	31,381	93	1,062,396	1,093,870	2.54	0.0	0.0	0.0	3.3	11.6	1.8	20.2	12.5	31.9	5.0	6.0	7.9
Klaskanine	Coho	Klaskanine R	Klaskanine R, N Fk	1988	32,091	169	1,362,297	1,394,557	4.80	0.0	0.0	0.1	1.9	14.3	2.0	12.8	10.8	34.3	14.9	5.2	3.7
Klaskanine	Coho	Klaskanine R	Klaskanine R, N Fk	1989	30,159	200	1,228,538	1,258,897	1.57	0.0	0.0	0.0	2.2	8.5	0.9	28.8	8.1	27.9	21.6	2.0	0.0
Klaskanine	Coho	Klaskanine R	Klaskanine R, N Fk	1990	31,141	66	990,251	1,021,458	0.37	0.0	0.0	0.0	0.0	28.9	0.0	13.5	0.0	41.0	13.3	3.4	0.0
				Average	31,416	106	1,090,187	1,121,708	2.73	0.0	0.0	0.1	2.7	14.6	0.9	17.6	11.1	33.4	12.4	4.3	2.9

Appendix Table 1 Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods. Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

Coho

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
S F Klask Pd	Coho	Big Creek	Tucker Cr	1986	25,223	515	113,243	138,981	3.12	0.0	0.6	0.0	2.7	10.0	1.1	21.5	17.0	35.6	4.8	4.5	2.2
S F Klask Pd	Coho	Sandy R	Youngs R	1987	28,657	202	125,627	154,486	2.97	0.0	0.0	0.2	5.5	10.5	3.5	18.5	10.6	43.8	1.9	4.6	0.9
Eagle Cr NFH	Coho	Clackamas R E	Youngs R	1988	47,705	2,420	338,352	388,477	8.16	0.0	0.0	0.0	1.4	14.1	1.7	10.0	7.9	50.0	7.2	3.9	3.9
Eagle Cr NFH	Coho	Clackamas R E	Youngs R	1989	109,918	2,390	2,024,753	2,137,061	1.24	0.0	0.0	0.0	2.2	15.9	1.0	26.5	7.6	40.3	5.9	0.8	0.0
				Average	62,093	1,671	829,577	893,341	4.12	0.0	0.0	0.1	3.0	13.5	2.1	18.3	8.7	44.7	5.0	3.1	1.6
S F Klask Pd	Coho	Big Creek	Youngs Bay	1990	27,439	260	646,753	674,452	1.13	0.0	0.0	0.0	0.0	22.9	3.6	9.0	0.0	55.2	5.8	3.6	0.0
S F Klask Pd	Coho	Kalama R	Youngs Bay	1990	26,139	337	379,500	405,976	0.13	0.0	0.0	0.0	14.3	11.4	17.1	0.0	0.0	45.7	11.4	0.0	0.0
S F Klask Pd	Coho	Klaskanine R	Youngs Bay	1990	52,490	537	350,199	403,226	3.48	0.0	0.0	0.1	2.9	14.2	5.7	9.2	0.0	55.4	7.8	4.6	0.0
S F Klask Pd	Coho	Sandy R	Youngs Bay	1990	53,761	544	664,314	718,619	0.03	0.0	0.0	0.0	0.0	9.2	0.0	10.7	0.0	69.3	0.0	10.7	0.0
S F Klask Pd	Coho	Tanner Cr	Klaskanine R, S Fk	1987	28,369	114	246,517	275,000	6.99	0.0	0.0	0.0	2.5	15.1	1.3	17.0	16.6	25.7	8.4	5.1	6.3
S F Klask Pd	Coho	Klaskanine R	Klaskanine R, S Fk	1988	27,126	64	752,130	779,320	5.74	0.0	0.0	0.6	2.3	11.8	0.6	16.3	10.9	36.6	13.4	3.8	3.7
S F Klask Pd	Coho	Sandy R	Klaskanine R, S Fk	1989	26,441	810	757,851	785,102	0.53	0.0	0.0	0.0	0.0	20.6	1.4	32.6	5.7	22.0	17.7	0.0	0.0
S F Klask Pd	Coho	Klaskanine R	Klaskanine R, S Fk	1990	26,387	538	626,425	653,350	3.17	0.0	0.0	0.0	1.3	19.2	5.9	11.5	0.0	42.5	14.5	5.1	0.0
				Average	27,081	382	595,731	623,193	4.11	0.0	0.0	0.2	1.5	16.7	2.3	19.4	8.3	31.7	13.5	3.5	3.0
Eagle Cr NFH	Coho	Sandy R	Klaskanine R	1987	25,701	1,447	285,177	312,325	1.56	0.0	0.0	0.0	4.5	19.7	2.5	16.5	15.7	34.2	2.2	1.0	3.7
South Santiam	Coho	Clackamas R L	Collawash R	1986	29,547	2,168	401	32,116	1.07	0.0	0.0	0.0	6.9	6.9	0.0	20.2	33.4	22.4	1.0	4.4	4.7
Eagle Cr NFH	Coho	Clackamas R L	Collawash R	1987	15,395	1,315	90	16,800	0.38	0.0	0.0	0.0	0.0	13.8	0.0	44.8	32.8	0.0	0.0	8.6	0.0
				Average	22,471	1,742	246	24,458	0.73	0.0	0.0	0.0	3.5	10.4	0.0	32.5	33.1	11.2	0.5	6.5	2.4
Sandy	Coho	Sandy R	Cedar Cr (Sandy R)	1986	237,559	11,765	757,485	1,006,809	8.62	0.0	0.0	0.1	2.5	9.4	2.0	12.6	22.4	23.3	26.0	1.2	0.6
Sandy	Coho	Sandy R	Cedar Cr (Sandy R)	1987	134,253	2,034	924,257	1,060,544	2.35	0.0	0.0	0.0	9.8	17.6	2.3	20.4	15.0	5.0	24.8	2.1	3.0
Sandy	Coho	Sandy R	Cedar Cr (Sandy R)	1988	180,411	8,913	766,028	955,352	4.11	0.0	0.0	0.0	2.1	15.9	1.5	13.9	18.0	12.1	34.0	1.4	1.1
Sandy	Coho	Sandy R	Cedar Cr (Sandy R)	1989	209,698	10,535	235,828	456,061	3.08	0.0	0.0	0.1	1.6	12.5	0.3	28.3	7.3	6.7	43.0	0.4	0.0
Sandy	Coho	Sandy R	Cedar Cr (Sandy R)	1990	225,775	1,976	809,529	1,037,280	0.07	0.0	0.0	0.0	0.1	34.5	0.3	9.4	0.0	0.7	54.7	0.3	0.0
				Average	197,539	7,045	698,625	903,209	3.69	0.0	0.0	0.0	3.2	18.0	1.3	16.9	12.5	9.6	36.5	1.1	0.9
Trojan Pond	Coho	Sandy R	Columbia R	1989	27,206	834	92,615	120,655	0.20	0.0	0.0	0.0	0.0	36.4	0.0	34.6	16.4	10.9	1.8	0.0	0.0

Appendix Table 1 Average Percent Recovery (by Fishery) for the Last 5 Completed Brood years

(Chinook 1984 to 1988 broods; Coho 1986 to 1990 broods; Steelhead 1985 to 1989 broods)

Data downloaded October 1994 (through Preliminary 1993 returns)

					Number					Percent Recovery for All Areas											
						AD Clip		Total	%	Alaska		British Col		Washington		Oregon		Freshwater Other		California	
Coho																					
Hatchery	Species	Stock	Release Site	Brood	Tagged	Only	Untagged	Released	Surv	Spt	Com	Spt	Com	Spt	Com	Spt	Com	Gillnet	Freshwater	Spt	Com
Wahkeena Pd	Coho	Tanner Cr	Wahkeena Pond	1986	32,132	477	31,566	64,175	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wahkeena Pd	Coho	Tanner Cr	Wahkeena Pond	1987	28,944	145	570,909	599,998	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wahkeena Pd	Coho	Sandy R	Wahkeena Pond	1988	13,117	184	1,039,765	1,053,066	6.67	0.0	0.0	0.0	0.5	16.7	1.1	5.8	4.6	35.9	28.0	3.2	4.2
Wahkeena Pd	Coho	Tanner Cr	Wahkeena Pond	1989	29,975	1,465	1,068,804	1,100,244	0.02	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	33.3	33.3	0.0
Wahkeena Pd	Coho	Tanner Cr	Wahkeena Pond	1990	28,073	1,015	1,870,912	1,900,000	0.35	0.0	0.0	0.0	4.2	30.7	2.9	13.7	0.0	28.4	14.2	6.0	0.0
				Average	26,448	657	916,391	943,497	1.41	0.0	0.0	0.0	1.6	15.8	12.4	6.5	1.5	21.4	25.2	14.2	1.4
Summer Steelhead																					
Irrigon	STS	Imnaha R	Sheep Cr (Grande Ronde)	1985	54,290	576	60,530	115,396	0.80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.2	64.8	0.0	0.0
Irrigon	STS	Imnaha R	Sheep Cr (Grande Ronde)	1986	47,836	3,461	42,441	93,738	0.19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.1	58.9	0.0	0.0
Irrigon	STS	Imnaha R	Sheep Cr (Grande Ronde)	1987	54,874	741	191,379	246,994	0.55	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	21.9	77.5	0.0	0.0
Irrigon	STS	Imnaha R	Sheep Cr (Grande Ronde)	1988	54,696	1,078	193,684	249,458	0.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32.0	68.0	0.0	0.0
Irrigon	STS	Imnaha R	Sheep Cr (Grande Ronde)	1989	52,527	766	196,270	249,563	0.99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	39.7	60.3	0.0	0.0
				Average	52,845	1,324	136,861	191,030	0.56	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	34.0	65.9	0.0	0.0
Irrigon	STS	Wallowa R	Spring Cr (Wallowa R)	1985	107,435	7,129	79,988	194,552	1.41	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	38.0	61.9	0.0	0.0
Irrigon	STS	Wallowa R	Spring Cr (Wallowa R)	1986	196,485	4,632	388,001	589,118	0.79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.1	46.9	0.0	0.0
Irrigon	STS	Wallowa R	Spring Cr (Wallowa R)	1987	158,709	2,875	360,841	522,425	0.55	0.0	0.1	0.0	0.5	0.0	0.0	0.0	0.0	34.6	64.9	0.0	0.0
Irrigon	STS	Wallowa R	Spring Cr (Wallowa R)	1988	157,015	5,225	388,636	550,876	0.20	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	37.5	62.4	0.0	0.0
Irrigon	STS	Wallowa R	Spring Cr (Wallowa R)	1989	158,109	1,909	140,909	300,927	0.88	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	42.6	57.0	0.0	0.0
				Average	155,951	4,354	271,275	431,580	0.77	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.0	41.2	58.6	0.0	0.0
Oak Springs	STS	Umatilla R	Umatilla R	1987	58,067	685	2,554	61,306	0.53	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	24.7	74.8	0.0	0.0
Oak Springs	STS	Umatilla R	Umatilla R	1988	52,726	6,131	581	59,438	0.05	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
Oak Springs	STS	Umatilla R	Meacham Cr	1989	56,034	1,984	1,653	59,671	0.64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.7	75.3	0.0	0.0
				Average	55,609	2,933	1,596	60,138	0.41	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	16.5	83.4	0.0	0.0
Winter Steelhead																					
Marion Forks	STW	N Santiam R	Green Peter Res	1985	19,838	435	0	20,273	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marion Forks	STW	N Santiam R	Pyramid Cr	1985	19,866	551	0	20,417	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Marion Forks	STW	N Santiam R	Quartzville Cr	1985	19,388	1,071	0	20,459	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0