

# Annual Coded Wire Tag Program

## Oregon Stock Assessment

Annual Report 2001

March 2002

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ANNUAL STOCK ASSESSMENT -

CODED WIRE TAG PROGRAM

(ODFW)

2001 Annual Report

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## SUMMARY

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 project "Annual Stock Assessment - Coded Wire Tag Program (ODFW)". Results for the 2001 contract period: Objective 1 - Over 1 million juvenile salmon were coded-wire by this program (Table 1); Objective 2 - ODFW recovered and processed over 40,000 snout collected from coded-wire tagged fish (Table 2); Objective 3 - Survival data is summarized below; Objective 4 - The last group of VIE tagged coho was released in 2001 and returning coho were samples at Sandy Hatchery. This sampling showed only 1 of 1,160 returning coho VIE marked as juveniles retained the VIE mark as adults.

### Fall Chinook

There are three types of hatchery fall chinook released by ODFW in the Columbia basin; Tule, Upriver Bright, and Rogue River stocks.

The 10 year average survival of tule stock fall chinook was less than 0.20% for all three programs (Table 3). In the ocean these fish were caught primarily in West Coast Vancouver Island and Washington coastal fisheries (Table 8). Their freshwater recoveries were almost exclusively at hatcheries (Table 9).

The 10 year average survival of up-river bright stock fall chinook ranged from 0.05% for Umatilla Hatchery to 0.58% for Bonneville Hatchery fish released in the Umatilla River (Table 3). Survival of all three up-river bright hatchery programs has been low since the 1986 brood year (Table 3). Ocean catch of up-river bright stock fall chinook was mainly in Alaska, North Central British Columbia, and West Coast Vancouver Island fisheries (Table 8). Freshwater recoveries were mainly at hatcheries, but freshwater harvest was ½ or more of the number of fish that returned to the hatchery (Table 9). Recoveries in fisheries above Bonneville dam were higher for fish released above Bonneville Dam (Table 9).

The 10 year average survival of Rogue River stock fall chinook released at Big Creek and in Youngs Bay was about 1.0% for both programs (Table 3). These fish were caught primarily in Oregon, and secondarily in California and Washington ocean fisheries (Table 8). However, freshwater recoveries were very different for the two groups. Fish released in Big Creek were recovered about 76% at the hatchery, 8% in gillnet fisheries and 16% in sport fisheries (Table 9). Fish released in Youngs Bay were recovered about 9% at the hatchery, 76% in gillnet fisheries and 15% in sport fisheries (Table 9).

### Spring Chinook

A variety of stocks of spring chinook are released by ODFW hatcheries in the Columbia Basin. However, the programs can be grouped by release area; Lower River terminal areas, Willamette Basin, and Above Bonneville Dam.

Willamette basin spring chinook stocks are released in Youngs Bay and South Fork Klaskanine River to provide terminal fishery opportunities. The 10 year average survival of these two groups was 0.58% and 0.05% respectively (Table 3). Very few of these fish were caught in ocean fisheries, and most of the freshwater recoveries were in lower river gillnet fisheries (Tables 8 & 9).

The 10 year average survival of hatchery spring chinook released in the Willamette basin ranged from 0.49% for South Santiam Hatchery to 0.68% for Marion Forks Hatchery (Table 4). Percent survival was generally greater than 1.0% in the 1986 through 1988 brood years, but has been below 1.0% for all hatcheries in brood

years 1989 through 1995 (Table 4). In the ocean these fish are primarily caught in Alaska, North Central British Columbia, and West Coast Vancouver Island fisheries (Table 8). Freshwater recoveries are mainly at the hatchery, while harvest accounts for 40% to 50% of the total freshwater recoveries (Table 9). Freshwater harvest of Marion Forks Hatchery spring chinook is about 65% of the total freshwater recoveries (Table 9), which may be an artifact of the hatchery adult collection methods.

The 10 year average survival of hatchery spring chinook released above Bonneville Dam ranged from 0.01% for fish released in West Fork Hood River to 0.74% for fish released in the Deschutes River (Table 5). Very few of these fish are recovered in ocean fisheries (Table 8), and the few ocean recoveries observed for the 1986 through 1995 brood years occurred from Alaska to California. Freshwater recoveries were primarily at hatcheries (Table 9). However, for fish released in the Deschutes River 35% of the total freshwater recoveries were in sport, gillnet and tribal subsistence and ceremonial catch (Table 9). Fish released in the Umatilla and Imnaha Rivers had substantial recoveries on spawning ground surveys (Table 9).

### **Steelhead**

The 10 year average survival of hatchery steelhead ranged from 0.26% for winter steelhead released in the East Fork Hood River to 0.53% for summer steelhead released in Big Canyon Creek on the Wallowa River (Table 6). Ocean recoveries of ODFW Columbia Basin hatchery steelhead are very rare (Table 8) and occurred mainly in commercial net fisheries in Alaska and British Columbia. Freshwater recoveries are primarily at hatcheries and fish traps, with a substantial percent of fish recovered in sport fisheries and gillnet fisheries above Bonneville Dam (Table 9).

### **Coho**

Releases of coho salmon from ODFW hatcheries in the Columbia basin can be divided into three groups by release location; Above Bonneville Dam, At hatcheries below Bonneville Dam, and Terminal areas in the Columbia Estuary. Average percent survival for the last 10 years ranged from 0.31% to 0.58% for releases above Bonneville Dam, from 1.23% to 1.32% for lower river hatchery releases, and from 1.25% to 2.02% for releases in terminal areas (Table 7).

Ocean recoveries of coho released in all three areas occurred primarily in Oregon and Washington Coastal fisheries, with smaller catches in California and West Coast Vancouver Island fisheries (Table 8). Although ocean recovery patterns are very similar, freshwater recovery patterns are very different for the three release areas. Coho released in estuary terminal areas are predominantly recovered in lower river gillnet and freshwater sport fisheries, with very few hatchery recoveries (Table 9). Most freshwater recoveries of fish released at hatcheries below Bonneville Dam occur at hatcheries. Freshwater harvest of these fish accounts for 20% to 30% of the total freshwater recoveries (Table 9). Percent survival to freshwater harvest of coho released above Bonneville Dam have similar to that of coho released at lower river hatcheries, but the coho released above Bonneville Dam contribute to gillnet fisheries above the dam (Table 9). Coho released above Bonneville Dam also have fewer recoveries at hatcheries and fish traps than coho released at lower river hatcheries. However, this may be at least partly a reflection of differences in sampling locations and techniques rather than differences in survival and freshwater harvest rates.

## INTRODUCTION

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 production groups of anadromous salmonids not currently tagged. Some groups of hatchery production fish were already being tagged by other programs. The Bonneville Power Administration contract consisted of coded-wire tagging the remaining untagged production groups for the future data base. This project began in 1990 to coded-wire tag 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 (PSMFC). Release and recovery information is stored along with sampling and mark/unmarked release ratios. This information is then used to estimate survival rates and catch contribution rates for each production lot of fish reared and released at each hatchery. This data is used to evaluate effectiveness of each hatchery as well as various rearing and release practices. 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 is also used by salmon harvest managers in developing scenarios that will allow harvest of excess hatchery fish while protecting threatened and endangered natural stocks.

The vision of the Fish and Wildlife Plan (NPPC 2000) is of a Columbia River ecosystem "...that sustains an abundant, productive, and diverse community of fish and wildlife, mitigating across the basin for adverse effects to fish and wildlife caused by the development and operation of the hydrosystem and providing the benefits from fish and wildlife valued by the people of the region." The Fish and Wildlife Plan is primarily a habitat-based program that focuses on protecting and rebuilding healthy, naturally producing fish and wildlife populations in the Columbia River basin. Although focused on natural production the Fish and Wildlife Plan acknowledges a role for artificial production of fish "...to replace capacity, bolster productivity, and alleviate harvest pressure on weak, naturally spawning resident and anadromous fish populations." The coded-wire tag program is a critical component of the post-release monitoring of artificial production programs. The coded-wire tag project provides data that can be used to assist in addressing some of the basinwide artificial production strategies identified by the Fish and Wildlife Plan, including: using an experimental, adaptive management design; aggressively evaluate risks and benefits; monitor impacts to wild populations (straying, mixed stock fisheries); and reporting on results in relation to the artificial production programs objectives. The coded-wire tag project also assists in the monitoring of inriver and ocean fisheries to "...routinely estimate stock composition and age specific abundance, escapement, catch, and age distribution." (NPPC 2000, Basinwide Strategies D. 5. Harvest Monitoring), and can assist in providing information for subbasin assessments, such as "...mainstem survival rates, ocean and inriver harvest rates, effects of interactions with fish from other subbasins, and ocean conditions." (NPPC 2000, Subbasins A. 3. Subbasin Assessment)

#### METHODS AND MATERIALS

The adipose fin clip + coded-wire tag (Jefferts et.al. 1963) was chose as the method of marking because its use is well established in the region, there is a region wide sampling program for this mark, and there is an established regional data reporting, storing, and access system. In 1989 a committee of agency and

tribal scientists recommended the number of fish tagged per group for this project be based on producing a minimum of 30 actual tag recoveries per group. Based on historic levels of survival, harvest, and sampling, the following levels of tagging should meet that goal; tag 25,000 for groups with expected survivals of 0.5% or higher, and tag 50,000 for groups with expected survivals of 0.5% or lower. Some groups of 30,000 are used for Willamette Basin spring chinook to maintain equal sample size with ongoing ODFW research projects funding other tagging at those hatcheries. These levels generally agree with Reisenbichler and Hartmann (1978) who recommended tagging 25,000 fish per group for estimation of fish contribution. However, the increasing complexity of fisheries management regimes requires much higher levels of tagging (Hankin and Mohr 1990).

Objective 1. Insure all ODFW Columbia Basin hatchery coho and chinook production releases have a representative CWT group included in the release. Specific tasks and methods follow:

- a) Determine groups to be tagged and number of fish to tag. This is a three step process. First, all production releases are identified, based on program intent (ongoing regular smolt production), number of fish released (50,000 or more), and fish of an acceptable size (at least 2.0 gm/fish). Second, groups with adequate tagging funded by other sources are eliminated from the list. Finally, the number of fish to tag is determined based on the expected survival, generally 25,000 to 50,000 fish per group.
- b) The identified groups of fish are tagged based on the manufactures recommendations and standard techniques for coded-wire tagging (Jenkinson and Bilton 1981).
- c) Pre-release checks of 500 fish per group (PSC 1995) are made at least 4 weeks after tagging (Blankenship 1981).
- d) All release information is reported to the Pacific States Marine Fisheries Commission and is available on their on-line computer database.

Objective 2. Recover coded-wire tags from snouts of fish tagged under Objective 1. Specific tasks and methods follow:

- a) Snouts collected from marked fish sampled in fisheries, hatcheries, and other recovery areas are frozen and transported to the ODFW Fish Identification head lab in Clackamas, Oregon.
- b) Tags are recovered, read and stored using standard techniques. ODFW tags recovered by other agencies are sent to the Clackams lab for verification.
- c) All recovery information is reported to the Pacific States Marine Fisheries Commission and is available on their on-line computer database.

Objective 3. Prepare annual report. Specific tasks and methods follow:

- a) Compile release and recovery information from all CWT groups released in the Columbia Basin by ODFW.
- b) Calculate total percent survival  $[(\text{total estimated recoveries}/\text{number of tagged fish released}) \times 100]$  and percent survival by area  $[(\text{total estimated recoveries in each area}/\text{number of tagged fish released}) \times 100]$  for each CWT group. Calculate 10 year averages of the above information by hatchery program (species/stock/release location).
- c) Compile and submit report to BPA by 90 days after end of contract. Report published by BPA.

Objective 4. Evaluate the technical, logistic, and biological feasibility of using alternative marking techniques to mark large numbers of juvenile coho salmon.



- a) Mark one group of 75,000 juvenile coho salmon at Sandy Hatchery. Each fish will receive a code-wire tag (in the snout), adipose fin clip, and visual implant tag (in the jaw).
- b) Collect and record data during hatchery rearing (from tagging through release) including daily mortality, daily amounts fed, monthly fish size, and monthly disease checks.
- c) Pre-release checks of 500 fish per group (PSC 1995) are made at least 4 weeks after tagging (Blankenship 1981).
- d) Coho salmon jacks and adults collected at Sandy Hatchery will be checked for fin clips and visual implant tags. Marked fish will be sampled for gender, length, and have their snouts removed for CWT recovery.

## RESULTS

Objective 1. We completed coded-wire tagging and ad-clipping (Ad+CWT) a total of over 1.0 million juvenile 2000 brood spring chinook, fall chinook, and coho salmon (Table 1). The total represents 24 different tag groups. Operational costs for this tagging totaled about \$108,000 (without administrative overhead), or an average of \$107 per thousand fish tagged, ranging from \$92/1,000 to \$125/1,000.

Table 1. Fish tagged and respective estimated operational costs. (January 1, 2001 to December 31, 2001)

Obj.	Act.	Period	Location	Brood	Sp.	CWT'd	Grps	\$/K	Tot. \$
1	1	April, 01	Big Creek	00	CHF	226,386	1	\$113	\$25,596
1	2	April, 01	Bonneville	00	CHF	106,880	2	\$92	\$9,841
1	3	April, 01	Oxbow	00	CHS	53,143	1	\$105	\$5,571
1	4	May, 01	Willamette	00	CHS	32,774	1	\$107	\$3,504
1	5	May, 01	Willamette	00	CHS	32,079	1	\$107	\$3,429
1	6	May, 01	Willamette	00	CHS	59,918	1	\$107	\$6,406
1	7	Aug., 01	South Santiam	00	CHS	55,516	1	\$116	\$6,441
1	8	July, 01	Marion Forks	00	CHS	30,481	1	\$115	\$3,506
1	9	July, 01	McKenzie	00	CHS	61,877	2	\$108	\$6,686
1	10	May, 01	Big Creek	00	Coho	54,712	2	\$125	\$6,814
1	11	Oct., 01	Bonneville	00	Coho	27,107	1	\$95	\$2,564
1	12	Sept., 01	Cascade	00	Coho	107,787	4	\$102	\$10,951
1	13	Aug., 01	Oxbow	00	Coho	54,810	2	\$92	\$5,050
1	14	Nov., 01	S Fk Klaskanine	00	Coho	25,741	1	\$125	\$3,220
1	15	Oct., 01	Sandy	00	Coho	27,176	1	\$102	\$2,773
1	16	Oct., 01	Sandy	00	Coho	55,242	2	\$102	\$5,637
			Totals			1,011,629	24	\$107	\$107,991

Objective 2. During 2001 we completed processing a total of 40,357 tags at the laboratory in Clackamas. The total consisted of fish from sport, commercial, tribal, hatchery, spawning ground surveys, and miscellaneous other fisheries (Table 2). Verifications on the tags recovered and returned to ODFW by other agencies during 2001 have not yet been completed.

Objective 3. A summary of available coded-wire tag release and recovery information for each group of Ad+CWT tagged fish released from Oregon Department of Fish and Wildlife hatcheries in the Columbia Basin is presented in Appendix A. Data in Appendix A covers the last 10 brood years with complete recovery data. Recovery data is available through the 2000 return year. This equates to complete recovery data for the 1986 through 1995 brood years for chinook salmon, 1987

through 1996 brood years for steelhead, and 1988 through 1997 brood years for coho salmon.

Objective 4. Results are reported in Appendix B.

Table 2. CWT's processed at Clackamas. (Jan. 2001 to Dec. 2001)

Fishery	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	2001 Total
River Sport	510	44	42	0	241	0	0	1,827	117	255	83	16	3,135
Hatchery	2,790	2,400	2,738	1,226	228	0	3,510	0	913	79	2,865	2,082	18,831
Spawning Ground	555	0	98	3	633	0	0	0	0	0	128	96	1,513
Treaty Gillnet	229	0	0	0	0	0	0	0	888	0	0	0	1,117
Non-Treaty Gillnet	0	0	772	0	0	0	0	0	430	0	0	0	1,202
Youngs Bay Gillnet	0	0	1,294	0	0	0	0	0	376	0	358	11	2,039
Terminal Gillnet	3	763	0	0	0	0	0	0	0	0	524	22	1,312
Ocean Sport/Troll	0	0	0	0	0	658	0	0	1,804	2,564	4,682	0	9,708
Estuary Sport	91	0	0	0	0	0	0	0	525	0	1	11	628
Whiting By-Catch	219	0	0	0	0	0	0	0	0	0	0	0	219
Ceremonial/Subsist	492	0	27	0	0	0	0	0	0	0	0	24	543
Columbia R Test	0	0	21	0	0	0	0	0	0	0	0	0	21
Smolt Recoveries	0	0	0	0	0	0	0	89	0	0	0	0	89
Totals	4,889	3,207	4,992	1,229	1,102	658	3,510	1,916	5,053	2,898	8,641	2,262	40,357
Verifications	0	0	0	0	0	0	0	0	0	0	0	0	0

#### DISCUSSION

The following discussion section consists of two parts: 1) Tables of percent survival data for all programs (total survival, survival to ocean fishery areas, and survival to freshwater recovery areas); 2) Discussions of results for each individual ODFW Columbia Basin hatchery.

The following estimates of percent survival are based on releases of Ad+CWT marked juvenile hatchery salmonids and their subsequent recovery as adults, in ocean and freshwater fisheries, at hatcheries or fish traps, and on spawning grounds. Percent survival is calculated as (total estimated recoveries/number of tagged fish released)\*100. The estimated brood year percent survival is the percent survival of the Ad+CWT group representing that brood year for that production group. When more than one Ad+CWT group is available for a brood year the brood year percent survival is calculated as the weighted average of the Ad+CWT groups. Percent survival estimates are weighted by the total number of fish, both marked and unmarked, associated with each Ad+CWT group.

In using the recovery data in this report several cautions need to be kept in mind. (1) The estimated survivals are minimum survivals. Some CWT fish are caught or escape to areas that are not sampled, or are not sampled in a way that allows for estimation of the total number of CWT fish in that area. (2) Spawning ground recoveries of Ad+CWT fish are generally not expanded. Only the number of observed recoveries is available. (3) Most freshwater fisheries outside of the Columbia River system are not sampled. (4) The reduced salmon fishing seasons of the last several years have the potential to bias survival estimates. Reduced harvest should result in increased escapement. However, not all escapement areas are sampled, or sampled equally. Some hatchery traps include a barrier across the

stream others rely on swim-in without any barrier. Also, some groups of fish are/were released in off-site areas without adult recapture facilities (i.e. coho salmon reared at Big Creek Hatchery and released in the Tualatin River).

Table 3. Estimated 1986 through 1995 brood year percent survival for ODFW hatchery fall chinook programs in the Columbia Basin. Programs are identified by hatchery, stock, and release site. URB = Upriver Bright Stock.

Brood Year	CEDC Rogue Youngs Bay	Big Cr Rogue Big Cr	Big Cr Tules Big Cr	Stayton Tules Willamette R	Bonneville Tules Tanner Cr	Bonneville URB Tanner Cr	Bonneville URB Umatilla R	Umatilla URB Umatilla R
1986	0.36%	2.28%	0.18%	0.09%	0.15%	1.06%	2.89%	
1987	3.02%	2.24%	0.05%	0.13%	0.02%	0.27%	0.50%	
1988		1.36%	0.17%	0.16%	0.21%	0.13%		
1989	1.37%	0.78%	0.12%	0.68%	0.15%	0.25%		
1990		0.78%	0.09%	0.15%	0.12%	0.29%	0.02%	
1991	0.15%	0.51%	0.17%	0.01%	0.03%	0.06%	0.04%	0.00%
1992		1.55%	0.08%	0.00%	0.03%	0.36%	0.26%	0.06%
1993	1.18%	0.61%	0.28%	0.02%	0.05%	0.51%	0.18%	0.08%
1994	0.19%	0.32%	0.07%	0.06%	0.04%	0.09%	0.20%	0.00%
1995	0.24%	0.17%	0.03%		0.02%	0.21%		0.12%
<b>Avg.</b>	<b>0.93%</b>	<b>1.06%</b>	<b>0.12%</b>	<b>0.14%</b>	<b>0.08%</b>	<b>0.32%</b>	<b>0.58%</b>	<b>0.05%</b>
<i>Min</i>	<i>0.15%</i>	<i>0.17%</i>	<i>0.03%</i>	<i>0.00%</i>	<i>0.02%</i>	<i>0.06%</i>	<i>0.02%</i>	<i>0.00%</i>
<i>Max</i>	<i>3.02%</i>	<i>2.28%</i>	<i>0.28%</i>	<i>0.68%</i>	<i>0.21%</i>	<i>1.06%</i>	<i>2.89%</i>	<i>0.12%</i>

Table 4. Estimated 1986 through 1995 brood year percent survival for ODFW spring chinook programs in the Columbia Basin below Bonneville Dam. Programs are identified by hatchery, stock, and release site. Various = Different Willamette Basin spring chinook stocks used in different years.

Brood Year	Clackamas Clackamas	Clackamas Clackamas Sandy	Marion Forks N Santiam	McKenzie McKenzie	S Santiam S Santiam	Willamette M Fk Will.	CEDC Various Youngs Bay	CEDC Various SF Klaskanine
1986	0.50%		1.85%	1.56%		1.23%		
1987	0.86%		1.51%	1.13%	1.28%	0.72%		
1988	1.16%		1.18%	1.11%	0.21%	1.07%	0.44%	0.00%
1989	0.50%		0.60%	0.34%	0.74%	0.73%	0.10%	0.04%
1990	0.46%		0.17%	0.11%	0.42%	0.44%	0.15%	0.02%
1991	0.22%	0.08%	0.36%	0.22%	0.35%	0.41%	0.00%	0.02%
1992	0.26%	0.05%	0.15%	0.18%	0.18%	0.34%	0.36%	0.03%
1993	0.44%	0.13%	0.25%	0.19%	0.30%	0.51%	0.75%	0.07%
1994	0.45%	0.26%	0.29%	0.23%	0.35%	0.42%	0.16%	0.02%
1995	0.44%	0.12%	0.39%	0.30%	0.56%	0.19%	0.10%	0.04%
<b>Avg.</b>	<b>0.53%</b>	<b>0.13%</b>	<b>0.68%</b>	<b>0.54%</b>	<b>0.49%</b>	<b>0.61%</b>	<b>0.26%</b>	<b>0.03%</b>
<i>Min</i>	<i>0.22%</i>	<i>0.05%</i>	<i>0.15%</i>	<i>0.11%</i>	<i>0.18%</i>	<i>0.19%</i>	<i>0.00%</i>	<i>0.00%</i>
<i>Max</i>	<i>1.16%</i>	<i>0.26%</i>	<i>1.85%</i>	<i>1.56%</i>	<i>1.28%</i>	<i>1.23%</i>	<i>0.75%</i>	<i>0.07%</i>

Table 5. Estimated 1986 through 1995 brood year percent survival for ODFW spring chinook programs in the Columbia Basin above Bonneville Dam. Programs are identified by hatchery, stock, and release site.

Brood Year	Round Butte Deschutes Deschutes R	Round Butte Deschutes W F Hood R	Umatilla Carson Umatilla R	Lookingglass Rapid River Lookingglass Cr	Lookingglass Imnaha Imnaha R
1986	1.92%			0.12%	0.20%
1987	1.42%			0.04%	0.16%
1988	1.71%			0.35%	0.35%
1989	0.78%			0.11%	0.12%
1990	0.29%			0.04%	0.02%
1991	0.32%	0.00%	0.00%	0.03%	0.01%
1992	0.47%		0.01%	0.09%	0.01%
1993	0.10%		0.08%	0.09%	0.08%
1994	0.08%	0.01%	0.00%	0.05%	0.02%
1995	0.30%	0.03%	0.64%	0.33%	0.18%
<b>Avg.</b>	<b>0.74%</b>	<b>0.01%</b>	<b>0.15%</b>	<b>0.13%</b>	<b>0.12%</b>
<i>Min</i>	<i>0.08%</i>	<i>0.00%</i>	<i>0.00%</i>	<i>0.03%</i>	<i>0.01%</i>
<i>Max</i>	<i>1.92%</i>	<i>0.03%</i>	<i>0.64%</i>	<i>0.35%</i>	<i>0.35%</i>

Table 6. Estimated 1987 through 1996 brood year percent survival for ODFW steelhead programs in the Columbia Basin. Programs are identified by hatchery, stock, and release site.

Brood Year	Umatilla Summer Umatilla Umatilla R	Irrigon Summer Imnaha Little Sheep Cr	Irrigon Summer Wallowa Big Canyon Cr	Irrigon Summer Wallowa Spring Cr	Oak Springs Winter Hood R E Fk Hood R
1987		0.53%		0.52%	
1988		0.26%		0.21%	
1989		1.01%		0.96%	
1990		1.04%	0.94%	1.08%	
1991	0.08%	0.01%	0.10%	0.08%	
1992	0.39%	0.23%	0.35%	0.26%	
1993	0.40%	0.22%	0.82%	0.74%	0.36%
1994	0.98%	0.46%	0.61%	0.43%	0.38%
1995	0.36%	0.35%	0.63%	0.55%	0.05%
1996	0.26%	0.22%	0.24%	0.24%	
<b>Avg.</b>	<b>0.41%</b>	<b>0.43%</b>	<b>0.53%</b>	<b>0.51%</b>	<b>0.26%</b>
<i>Min</i>	<i>0.08%</i>	<i>0.01%</i>	<i>0.10%</i>	<i>0.08%</i>	<i>0.05%</i>
<i>Max</i>	<i>0.98%</i>	<i>1.04%</i>	<i>0.94%</i>	<i>1.08%</i>	<i>0.38%</i>

Table 7. Estimated 1988 through 1997 brood year percent survival for ODFW coho programs in the Columbia Basin. Programs are identified by hatchery, stock, and release site.

Brood Year	CEDC Tanner Cr Youngs Bay	CEDC Clackamas R Youngs Bay	CEDC Klaskanine R SF Klaskanine R	CEDC Tanner Cr Blind Sl.	CEDC Tanner Cr Tongue Pt.	Big Cr Big Cr Big Cr	Bonneville Tanner Cr Tanner Cr	Sandy Sandy R Sandy R	Cascade Tanner Cr Umatilla R	Cascade Tanner Cr Yakima R
1988		8.16%	5.76%			4.20%	3.14%	4.12%	3.17%	1.99%
1989		1.24%	0.54%			2.84%	2.05%	3.11%	0.17%	0.15%
1990			3.09%			0.21%	0.88%	0.07%	0.81%	0.07%
1991	2.89%	0.72%	0.63%			0.94%	2.25%	0.90%	0.21%	0.05%
1992	1.32%	0.58%	0.62%			0.73%	0.42%	0.45%	0.24%	0.13%
1993	0.69%	0.27%	0.97%	1.95%	3.09%	0.77%	0.86%	0.33%	0.06%	0.09%
1994	0.45%	1.44%	0.50%	1.30%	0.90%	0.91%	1.41%	0.32%	0.05%	0.08%
1995	1.44%		1.73%	0.07%	0.53%	0.56%	0.51%	0.68%	0.40%	0.21%
1996	1.12%	0.94%	0.99%	1.66%	4.00%	0.50%	0.61%	0.46%	0.38%	0.17%
1997	0.85%	1.41%	0.51%	2.01%	1.59%	1.57%	0.67%	1.87%	0.26%	0.14%
<b>Avg.</b>	<b>1.25%</b>	<b>1.85%</b>	<b>1.53%</b>	<b>1.40%</b>	<b>2.02%</b>	<b>1.32%</b>	<b>1.28%</b>	<b>1.23%</b>	<b>0.58%</b>	<b>0.31%</b>
<i>Min</i>	0.45%	0.27%	0.50%	0.07%	0.53%	0.21%	0.42%	0.07%	0.05%	0.05%
<i>Max</i>	2.89%	8.16%	5.76%	2.01%	4.00%	4.20%	3.14%	4.12%	3.17%	1.99%

Table 8. Average percent survival to ocean recovery area for ODFW hatchery programs in the Columbia Basin. Data are for the last ten completed brood years, chinook 1986-1995, steelhead 1987-1996, and coho 1998-1997. AK = Alaska, NCBC = North Central British Columbia, WCVI = West Coast Vancouver Island, GST = Georgia Strait, PS = Puget Sound, WA = Washington Coast, CA = California.

Stock Group	AK	NCBC	WCVI	GST	PS	WA	Oregon Ocean Catch Area <sup>a</sup>					CA
							1&2	3	4	5	6&7	
FALL CHINOOK SALMON												
CEDC (Rogue) <sup>b</sup>	0.00	0.00	0.01	0.00	0.00	0.04	0.01	0.01	0.16	0.18	0.01	0.04
Big Cr (Rogue)	0.00	0.00	0.02	0.00	0.00	0.06	0.01	0.03	0.19	0.16	0.01	0.05
Big Cr (Tule)	0.00	0.01	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Stayton Pond <sup>b</sup>	0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.01	0.00	0.00	0.00
Bonneville (Tule)	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Bonneville (URB)	0.05	0.04	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Bonn. (Umatilla)	0.04	0.04	0.10	0.00	0.00	0.03	0.00	0.00	0.01	0.01	0.00	0.00
Umatilla <sup>b</sup>	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPRING CHINOOK SALMON												
CEDC (Youngs Bay)	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CEDC (SF Klask.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Clackamas	0.04	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Sandy River <sup>a</sup>	0.03	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Marion Forks	0.08	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
McKenzie	0.05	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
South Santiam <sup>a</sup>	0.05	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Willamette	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Round Butte	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W Fk Hood River <sup>a</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Umatilla <sup>a</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lookingglass	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Imnaha River	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COHO SALMON												
CEDC (Tanner Stk)	0.00	0.00	0.01	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00
CEDC (Clack. Stk)	0.00	0.00	0.02	0.00	0.00	0.09	0.03	0.03	0.09	0.11	0.02	0.08
CEDC (SF Klask.)	0.00	0.00	0.02	0.00	0.00	0.10	0.04	0.02	0.08	0.09	0.01	0.06
CEDC (Blind Sl) <sup>a</sup>	0.00	0.00	0.01	0.00	0.00	0.03	0.01	0.00	0.01	0.00	0.00	0.00
CEDC (Tongue Pt)	0.00	0.00	0.01	0.00	0.01	0.06	0.02	0.01	0.01	0.01	0.00	0.00
Big Creek	0.00	0.00	0.02	0.00	0.00	0.08	0.02	0.03	0.11	0.13	0.01	0.01
Bonneville	0.00	0.00	0.02	0.00	0.00	0.05	0.02	0.02	0.06	0.06	0.01	0.02
Sandy	0.00	0.00	0.02	0.00	0.00	0.08	0.03	0.03	0.10	0.10	0.01	0.01
Umatilla River	0.00	0.00	0.01	0.00	0.00	0.04	0.01	0.01	0.03	0.05	0.01	0.03
Yakima River	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.01	0.02	0.03	0.00	0.02
SUMMER STEELHEAD												
Umatilla River <sup>a</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Little Sheep	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Big Canyon Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Spring Creek	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WINTER STEELHEAD												
E Fk Hood River <sup>a</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

a = Oregon ocean areas displayed in Figure 1.

b = Does not include data from all

ten years.

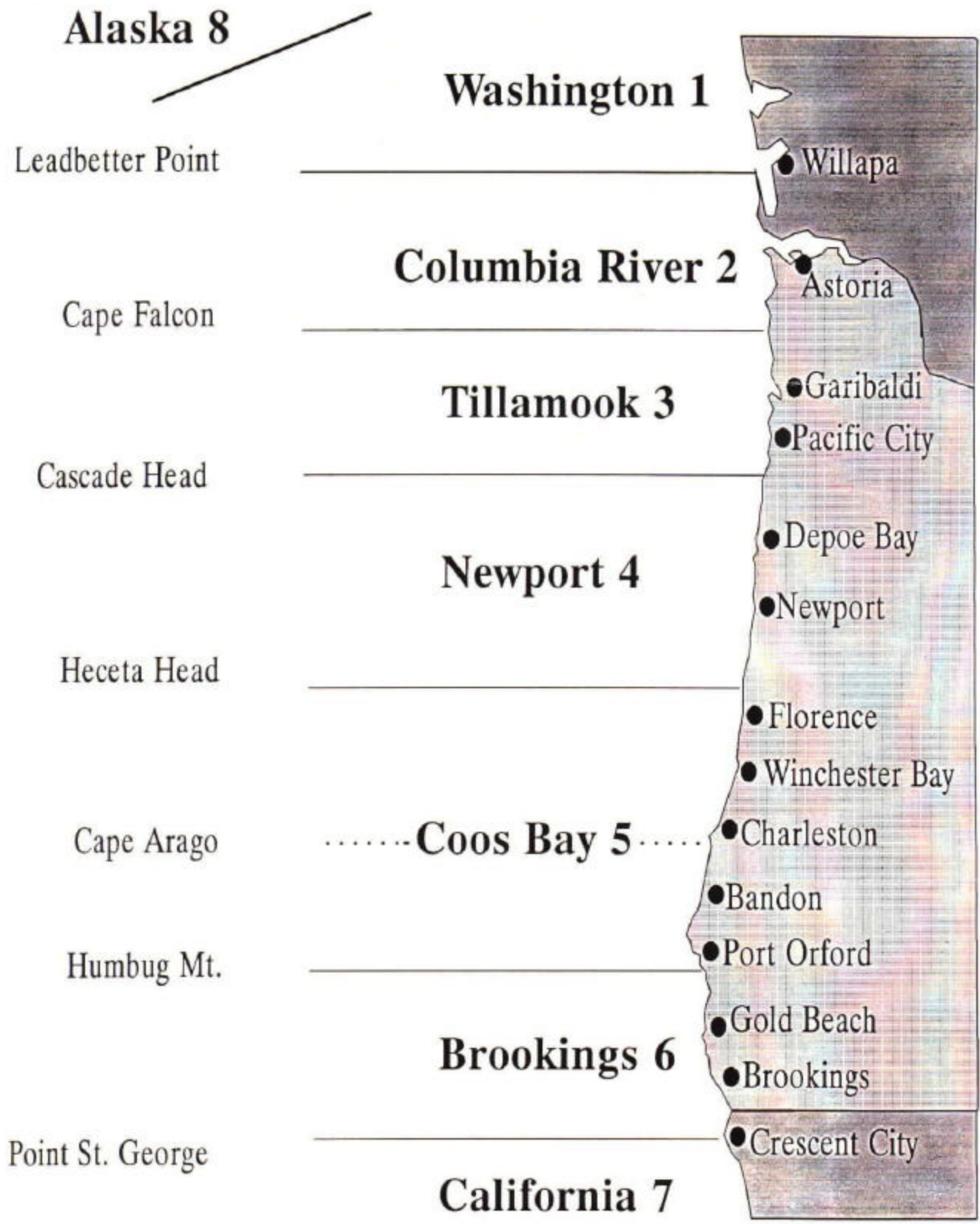


Figure 1. Catch areas for Oregon ocean salmon fisheries.

Table 9. Average percent survival to freshwater recovery area for ODFW hatchery programs in the Columbia Basin. Data are for the last ten completed brood years, chinook 1986-1995, steelhead 1987-1996, and coho 1998-1997. Gillnet above and

below are in relation to Bonneville Dam. Tribal is tribal subsistence and ceremonial. SGS is spawning ground survey. Other is miscellaneous recoveries, mostly seine.

Stock Group	Sport	Gillnet Below	Gillnet Above	Tribal	Hatcher	SGS	Other
FALL CHINOOK SALMON							
CEDC (Rogue) <sup>a</sup>	0.07	0.35	0.00	0.00	0.04	0.00	0.00
Big Cr (Rogue)	0.08	0.04	0.00	0.00	0.37	0.02	0.00
Big Cr (Tule)	0.00	0.01	0.00	0.00	0.05	0.01	0.00
Stayton Pond <sup>a</sup>	0.01	0.00	0.00	0.00	0.06	0.00	0.00
Bonneville (Tule)	0.00	0.00	0.00	0.00	0.04	0.00	0.00
Bonneville (URB)	0.01	0.04	0.03	0.00	0.12	0.01	0.00
Bonn. (Umatilla) <sup>a</sup>	0.03	0.02	0.10	0.00	0.20	0.00	0.00
Umatilla <sup>a</sup>	0.00	0.00	0.01	0.00	0.02	0.00	0.00
SPRING CHINOOK SALMON							
CEDC (Youngs Bay) <sup>a</sup>	0.00	0.22	0.00	0.00	0.01	0.00	0.00
CEDC (SF	0.00	0.01	0.00	0.00	0.01	0.00	0.00
Clackamas	0.18	0.00	0.00	0.00	0.26	0.00	0.00
Sandy River <sup>a</sup>	0.03	0.01	0.00	0.00	0.03	0.00	0.00
Marion Forks	0.32	0.04	0.00	0.00	0.19	0.00	0.00
McKenzie	0.18	0.03	0.00	0.00	0.25	0.00	0.00
South Santiam <sup>a</sup>	0.17	0.02	0.00	0.00	0.21	0.00	0.00
Willamette	0.20	0.02	0.00	0.00	0.32	0.00	0.00
Round Butte	0.20	0.01	0.00	0.05	0.48	0.00	0.00
W Fk Hood River <sup>a</sup>	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Umatilla <sup>a</sup>	0.01	0.00	0.00	0.00	0.09	0.04	0.00
Lookingglass	0.00	0.00	0.00	0.01	0.10	0.00	0.00
Imnaha River	0.00	0.00	0.00	0.00	0.09	0.02	0.00
COHO SALMON							
CEDC (YB-Tanner	0.05	1.10	0.00	0.00	0.01	0.00	0.00
CEDC (YB-Clack.	0.23	1.15	0.00	0.00	0.01	0.00	0.00
CEDC (SF Klask.)	0.12	0.81	0.00	0.00	0.19	0.00	0.00
CEDC (Blind Sl) <sup>a</sup>	0.08	1.24	0.00	0.00	0.01	0.00	0.00
CEDC (Tongue Pt) <sup>a</sup>	0.16	1.71	0.00	0.00	0.04	0.00	0.00
Big Creek	0.12	0.17	0.00	0.00	0.62	0.00	0.00
Bonneville	0.12	0.10	0.00	0.00	0.80	0.00	0.00
Sandy	0.12	0.09	0.00	0.00	0.62	0.00	0.00
Umatilla River	0.08	0.07	0.04	0.00	0.17	0.00	0.00
Yakima River	0.08	0.04	0.03	0.00	0.02	0.00	0.00
SUMMER STEELHEAD							
Umatilla River <sup>a</sup>	0.06	0.00	0.03	0.00	0.32	0.01	0.00
Little Sheep Creek	0.09	0.00	0.10	0.00	0.24	0.00	0.00
Big Canyon Creek <sup>a</sup>	0.23	0.00	0.10	0.00	0.19	0.00	0.00
Spring Creek	0.17	0.00	0.15	0.00	0.18	0.00	0.00
WINTER STEELHEAD							
E Fk Hood River <sup>a</sup>	0.19	0.00	0.02	0.00	0.05	0.00	0.00

a = Does not include data from all ten years.



## 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, originally built in 1939-41, rears and releases tule and Rogue fall chinook, coho salmon, and winter steelhead. The winter steelhead have not been marked with coded-wire tags for evaluation.

Tule stock fall chinook 1983 to 1995 broods percent survival averaged 0.12%, and ranged from 0.03% to 0.28% (Table 3). Survival has been consistently low over the last 10 brood years (Figure 2). Ocean catch was primarily in Canadian (West Coast Vancouver Island and North Central British Columbia) and Washington Coastal fisheries (Table 8). Freshwater recoveries were mainly at hatcheries, with lower river gillnet catch composing 14% of the total freshwater recoveries (Table 9).

Experimental releases of Rogue River stock fall chinook at Big Creek began in 1983. Good survival and contribution rates to Oregon fisheries resulted in expansion of the program. Rogue River stock fall chinook, 1983 to 1995 broods, percent survival averaged 1.06%, and ranged from 0.17% to 2.28% (Table 3). Survival has generally declined over the last 10 brood years (Figure 2). Ocean catch was primarily in Oregon fisheries, with smaller contributions to California and Washington Coastal fisheries (Table 8). Freshwater recoveries were mainly at hatcheries, with freshwater sport and lower river gillnet catch composing 24% of the total freshwater recoveries (Table 9). Beginning with the 1995 brood the release site was switched to Klaskanine Hatchery, to reduce straying.

The 1988 to 1997 brood Big Creek stock coho released in Big Creek survived at an average rate of 1.32%, and ranged from 0.21% to 4.20% (Table 7). Coho survival was generally low for the 1990 to 1996 broods, but increased with the 1997 brood (Figure 2). Ocean catch was mainly in Oregon and Washington coastal fisheries (Table 8). Freshwater recoveries were about 2/3 hatchery returns and 1/3 sport and lower river gillnet catch (Table 9). The same coho stock released in the Tualatin River survived at an average rate of 0.04% for the 1991 to 1996 broods. Releases in the Tualatin River were discontinued after the 1996 brood.

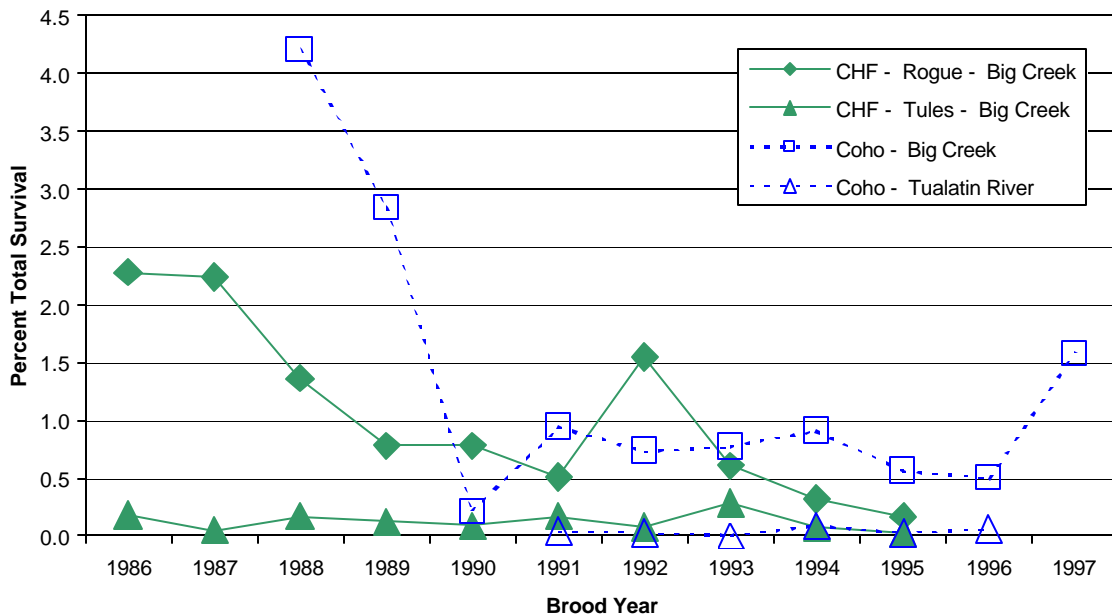


Figure 2. Percent survival by brood year for Big Creek Hatchery programs.

## **Klaskanine Hatchery**

Klaskanine Hatchery is located 21 miles southeast of Astoria, Oregon on Highway 202 adjacent to the Klaskanine River. The hatchery, originally built in 1913, was expanded and remodeled in 1953. Budget cuts have reduced hatchery staffing to 1 person and eliminated all rearing programs. Historically, the hatchery reared tule fall chinook, coho and winter steelhead. Presently, the hatchery serves as an acclimation and adult recapture facility for Rogue stock fall chinook and Big Creek stock winter steelhead. The winter steelhead have not been marked with coded-wire tags for evaluation.

Rogue Stock fall chinook releases began with the 1995 brood, which survived at the same rate (0.17%) as the same stock and brood released at Big Creek (Appendix A).

The tule fall chinook program was discontinued after the 1988 brood year, and the coho program was discontinued after the 1994 brood year. Release and recovery data for Klaskanine Hatchery 1986 to 1988 brood fall chinook and 1988 to 1994 brood coho CWT groups is reported in Appendix A.

## **Clatsop Economic Development Commission (CEDC)**

CEDC operates freshwater ponds and estuary net pens in Youngs Bay and adjacent areas near Astoria, Oregon. CEDC releases coho and chinook salmon in cooperation with ODFW hatcheries.

Tule fall chinook production was discontinued after the 1987 brood year. Experimental releases of Rogue stock fall chinook in Blind Slough and Tongue Point were begun with the 1995 brood year. Upriver Bright stock fall chinook were released in Youngs Bay (1994 brood) and at Tongue Point (1995 brood). Release and recovery data for CWT groups associated with all of these programs is reported in Appendix A.

Rogue River stock fall chinook released in Youngs Bay/South Fork Klaskanine River (1986 to 1995 broods) survived at an average rate of 0.93% and ranged from 0.15% to 3.02% (Table 3). Survival has generally declined over the last 10 brood years (Figure 3). Ocean catch was primarily in Oregon fisheries, with smaller contributions to California and Washington Coastal fisheries (Table 8). Freshwater recoveries were primarily lower river gillnet fisheries (Table 9).

Release of Willamette Basin spring chinook by CEDC began with the 1988 brood. A variety of different Willamette Basin stocks have been used over the years. The original releases were in Youngs Bay and South Fork Klaskanine River. The program was expanded to Blind Slough and Tongue Point beginning with the 1994 brood year. Release and recovery data for Blind Slough and Tongue Point release CWT groups is reported in Appendix A. Spring chinook released in Youngs Bay (1988 to 1995 broods) survived at an average rate of 0.26% and ranged from 0.00% to 0.75% (Table 4). Spring chinook released in South Fork Klaskanine River (1988 to 1995 broods) survived at an average rate of 0.03% and ranged from 0.00% to 0.07% (Table 4). Generally, survival of spring chinook released in the estuary terminal areas was below 0.5% (Figure 3), and is less than the survival of spring chinook released at the Willamette Basin hatcheries (Table 4). The very few spring chinook released by CEDC that are recovered in the ocean are caught in Alaskan ocean fisheries (Table 8). Freshwater recoveries are primarily in lower river gillnet fisheries, with a small number recovered at hatcheries (Table 9).

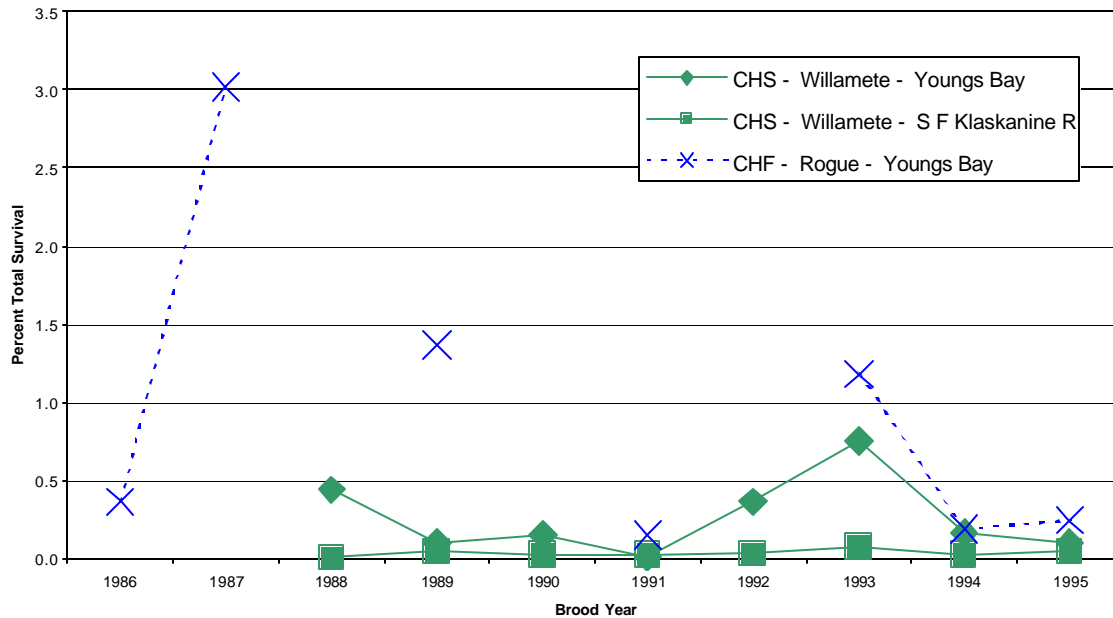


Figure 3. Percent survival by brood year for CEDC chinook programs.

Releases of coho salmon in Columbia Estuary terminal areas use a variety of stocks and release locations (Appendix A). Using data for five of the longer-term CEDC coho stock/release site data sets (brood years 1988 through 1997) 10 year average survival ranged from 1.25% to 2.02% (Table 7). Although survival has been decreasing over the last 10 brood years (Figure 4), it is still generally higher than that seen for coho salmon from ODFW lower Columbia hatcheries (Table 7). Ocean catch of CEDC coho is very similar to that of coho salmon from ODFW lower Columbia hatcheries, mainly in Oregon and Washington coastal fisheries (Table 8). Percent survival to freshwater sport fisheries is very similar for CEDC and other ODFW Columbia Basin coho programs (Table 9). However, coho released by CEDC have much higher recoveries in gillnet fisheries and much lower recoveries at hatcheries than other ODFW Columbia Basin coho programs (Table 9).

### 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 released summer and winter steelhead and cutthroat trout, none of which were coded-wire tagged for evaluation. Due to budget cuts the hatchery was switched in 1996 to rearing Willamette Basin stock spring chinook for acclimation and release in lower Columbia River net pens in cooperation with CEDC. For discussion of these programs see the CEDC section above.

### Eagle Creek National Fish Hatchery

Eagle Creek National Fish Hatchery (NFH) 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. For results of the Youngs Bay releases see the CEDC section above.

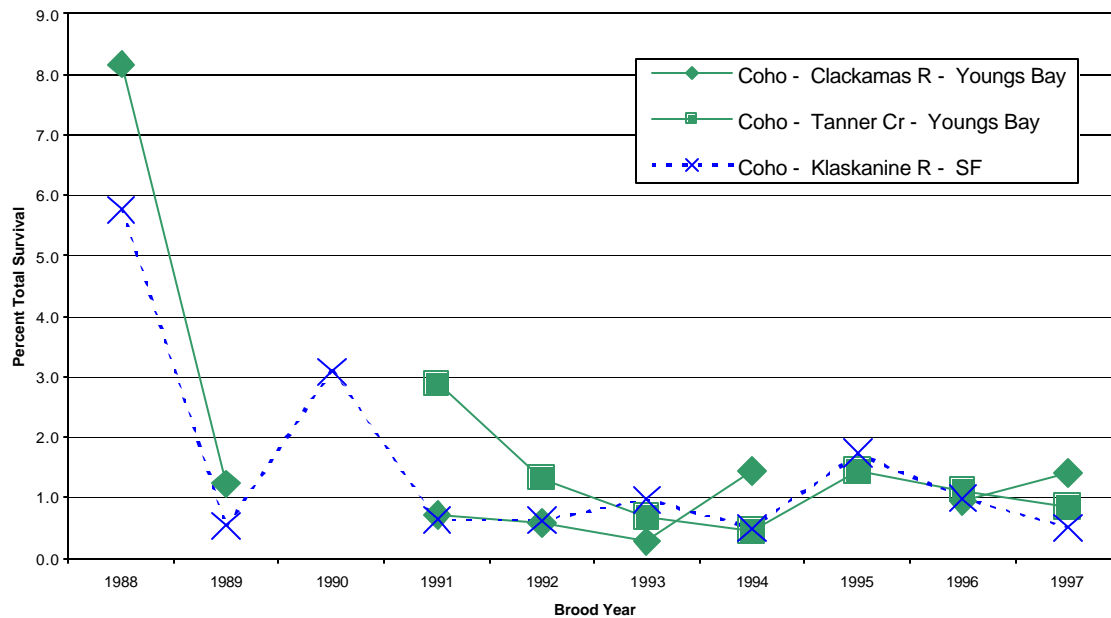


Figure 4. Percent survival by brood year for CEDC coho programs.

### 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. Due to water quality and quantity limits, eggs collected at Clackamas Hatchery are sent to other hatcheries for incubation and early rearing. Steelhead eggs go to Irrigon and Oak Springs hatcheries. Spring chinook eggs go to Willamette and Oxbow for incubation and then to Marion forks for rearing. Juveniles are then returned to Clackamas for final rearing and release. None of the Clackamas Hatchery summer and winter steelhead releases have been marked with coded-wire tags for evaluation.

The 1986 to 1995 brood Clackamas River stock spring chinook released in the Clackamas River survived at an average rate of 0.53% and ranged from 0.22% to 1.16% (Table 4). The same stock released in the Sandy River (1991 to 1995 broods) survived at an average rate of 0.13% and ranged from 0.05% to 0.26% (Table 4). For the 1986 to 1995 brood years Clackamas Hatchery spring chinook survival had 2 high survival broods (about 1.0%, 1987 and 1988), 2 low survival broods (about 0.2%, 1991 and 1992) brood years, and was fairly consistent at about 0.5% in the remaining years (Figure 5). The same stock of hatchery spring chinook released in the Sandy River showed a similar pattern in survival but the absolute values were lower (Figure 5). This is most likely the result of much lower levels of sampling for CWT spring chinook in the Sandy Basin.

Ocean recoveries of the two groups were fairly similar, predominately in Alaskan and Canadian (West Coast Vancouver Island and North Central British Columbia) fisheries (Table 8). Freshwater recoveries are mainly at hatcheries and fish traps, with freshwater sport and lower river gillnet fisheries accounting for 40% to 60% of the total freshwater recoveries for the Clackamas and Sandy release groups, respectively (Table 9).

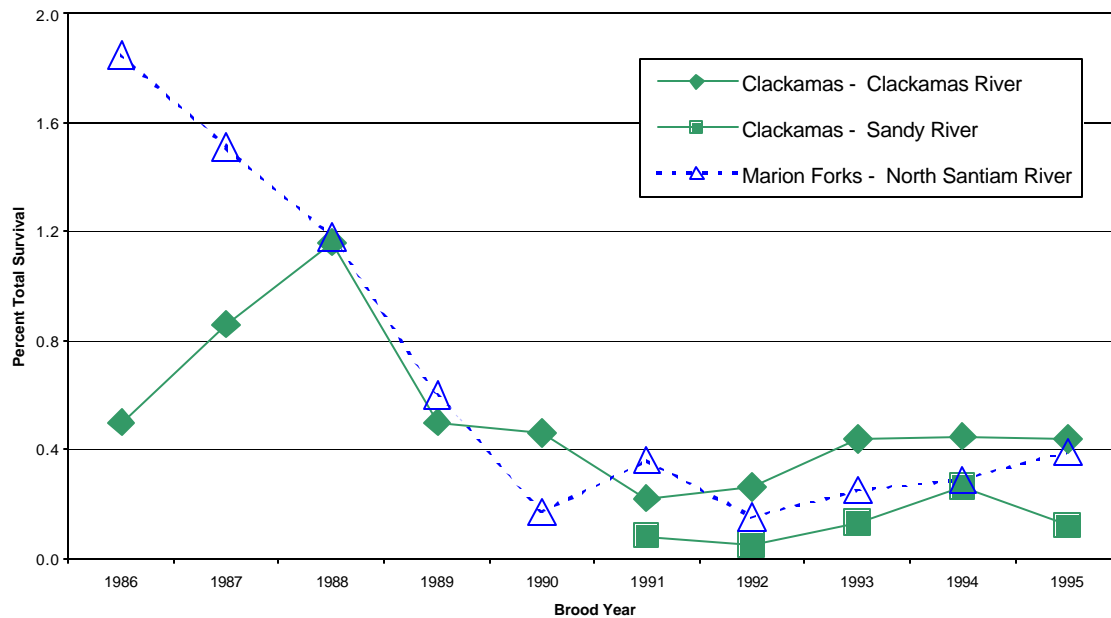


Figure 5. Percent survival by brood year for Clackamas and Marion Forks Hatchery programs.

### Marion Forks Hatchery

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, rainbow and cutthroat trout. Although prior brood years of winter steelhead have been coded-wire tagged, none were tagged for the current 10 brood years. All other rainbow and cutthroat trout released by the Marion Forks Hatchery were not coded-wire tagged for evaluation.

The 1986 to 1995 brood Marion Forks spring chinook survived at an average rate of 0.68% and ranged from 0.15% to 1.85% (Table 4). During this time period this was the highest average survival for all the Willamette Basin hatchery spring chinook programs. Survival for Marion Forks Hatchery spring chinook declined from the 1986 to 1990 brood years and has stayed below 0.4% since then (Figure 5). However, there is a slight increasing trend in survival since the 10 year survival low of 0.15% for the 1992 brood (Figure 5).

Ocean recoveries of these spring chinook are almost exclusively in Alaskan and Canadian (West Coast Vancouver Island and North Central British Columbia) fisheries (Table 8). Marion Forks spring chinook had the highest average percent survival to freshwater sport and lower river gillnet fisheries, but the lowest average percent survival to hatchery returns of all the Willamette Basin hatchery spring chinook programs (Table 9). Freshwater catch (sport and gillnet combined) composed 65% of the average freshwater recoveries for Marion Forks Hatchery spring chinook. This is much higher than the 42% to 48% seen for the other Willamette Basin hatchery spring chinook programs (Table 9). This difference is most likely related to adult collection methods at the hatcheries. Marion Forks Hatchery only collects adult spring chinook in the fall. The other Willamette Basin spring chinook hatcheries initially open their adult traps in the summer, close them in late summer and then re-open the traps in the fall, just prior to spawning.

### South Santiam Hatchery

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. Winter steelhead trout released by South Santiam Hatchery have not been coded-wire tagged to permit evaluation.

The 1987 to 1995 brood South Santiam spring chinook survived at an average rate of 0.49% and ranged from 0.18% to 1.28% (Table 4). Survival declined from the 1986 to 1992 brood years, but has shown a slight increasing trend since the 10 year survival low of 0.18% for the 1992 brood (Figure 6).

Ocean recoveries of these spring chinook are almost exclusively in Alaskan and Canadian (West Coast Vancouver Island and North Central British Columbia) fisheries (Table 8). South Santiam Hatchery spring chinook freshwater recoveries are mainly hatchery returns (Table 9). Freshwater catch (sport and lower river gillnet combined) composed 48% of the average freshwater recoveries for South Santiam Hatchery spring chinook.

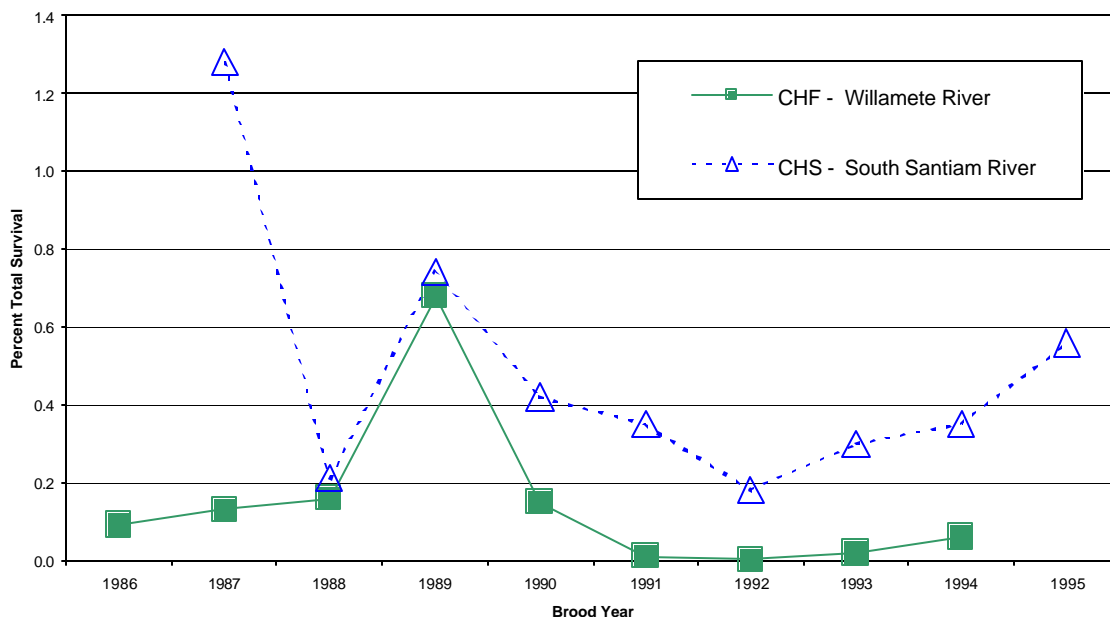


Figure 6. Percent survival by brood year for South Santiam Hatchery programs.

### Stayton Rearing Pond

Stayton Pond, a refurbished gravel pit located south of Stayton, was operated as a satellite of the South Santiam Hatchery. Stayton Pond reared tulle stock fall chinook, but production was discontinued after the 1994 brood year due to budget cuts and flood damage to the facility.

The 1986 to 1994 brood Stayton Pond fall chinook survived at an average rate of 0.14% and ranged from 0.00% to 0.68% (Table 3). Survival was consistently below 0.2% except for the 1989 brood year (Figure 6). Ocean recoveries were mostly in West Coast Vancouver Island and Washington Coastal fisheries (Table 8). Hatchery returns comprised 86% and freshwater sport 14% of freshwater recoveries (Table 9).

## 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.

## McKenzie Hatchery

McKenzie Hatchery is located on the McKenzie River 16 miles east of Springfield. McKenzie Hatchery rears and releases spring chinook salmon and summer steelhead trout. None of the summer steelhead released from McKenzie Hatchery have been coded-wire tagged for evaluation.

The 1986 to 1995 brood McKenzie Hatchery spring chinook survived at an average rate of 0.54% and ranged from 0.11% to 1.56% (Table 4). Survival declined from the 1986 to 1990 brood years, but has shown a slight increasing trend since the 10 year survival low of 0.11% for the 1990 brood (Figure 7).

Ocean recoveries of these spring chinook are almost exclusively in Alaskan and Canadian (West Coast Vancouver Island and North Central British Columbia) fisheries (Table 8). McKenzie Hatchery spring chinook freshwater recoveries are mainly hatchery returns (Table 9). Freshwater catch (sport and lower river gillnet combined) composed 46% of the average freshwater recoveries for McKenzie Hatchery spring chinook.

McKenzie Hatchery was involved in a net pen acclimation experiment for spring chinook. The goal of the experiment is to determine the effect of releasing smolts, both acclimated and direct releases at several sites below Willamette Falls, on catch in the Lower Willamette fishery. The experiment involved releases for the 1994 to 1999 brood years, although some fish were also released below Willamette falls for the 1992 and 1993 broods. Results by tagcode are reported in Appendix A. For a discussion of the experiment see Schroeder et.al. (2001).

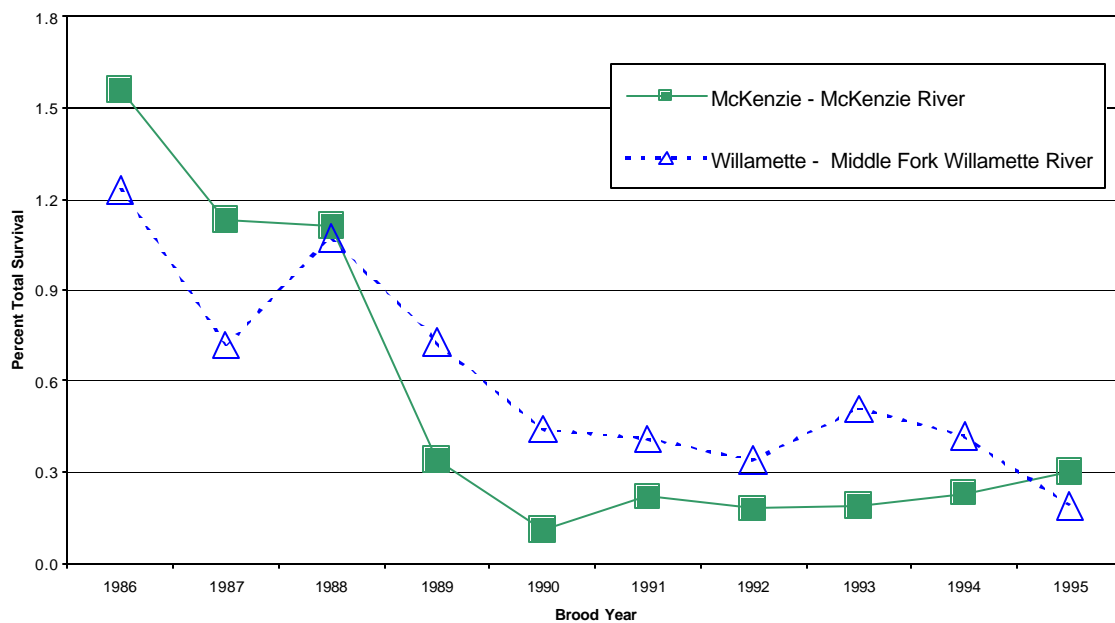


Figure 7. Percent survival by brood for Willamette & McKenzie Hatchery programs.

### **Leaburg Hatchery**

Leaburg Hatchery is located on the McKenzie River off Highway 126, 18 miles east of Springfield. Leaburg 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 Middle Fork 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. None of the steelhead or rainbow trout released from Willamette Hatchery have been coded-wire tagged for evaluation.

The 1986 to 1995 brood Willamette Hatchery spring chinook survived at an average rate of 0.61% and ranged from 0.19% to 1.23% (Table 4). Survival declined from the 1986 to 1990 brood years, and has been between 0.3% and 0.6% since then, except for the 1995 brood which hit a 10 year survival low of 0.19% (Figure 7).

Ocean recoveries of these spring chinook are almost exclusively in Alaska and North Central British Columbia fisheries (Table 8). Willamette Hatchery spring chinook freshwater recoveries are mainly hatchery returns (Table 9). Freshwater catch (sport and lower river gillnet combined) composed 41% of the average freshwater recoveries for Willamette Hatchery spring chinook.

### **Sandy Hatchery**

Sandy Hatchery is located on the Sandy River 1 mile northeast of the city of Sandy off Highway 26. Sandy Hatchery rears and releases coho salmon, rainbow and brook trout. Starting with the 1999 brood year Sandy Hatchery began acclimating and releasing a portion of the spring chinook reared at Clackamas Hatchery and released in the Sandy Basin. None of the rainbow or brook trout released by Sandy Hatchery were coded-wire tagged for evaluation.

The 1988 to 1997 brood years of Sandy River stock coho released in the Sandy River survived at an average rate of 1.23%, and ranged from 0.07% to 4.12% (Table 7). Coho survival was generally low for the 1990 to 1996 broods, but increased with the 1997 brood (Figure 8). Ocean catch was mainly in Oregon and Washington coastal fisheries (Table 8). Sandy Hatchery coho freshwater recoveries are mainly hatchery returns (Table 9). Freshwater sport and lower river gillnet catch composed 25% of the average freshwater recoveries for Sandy Hatchery coho.

### **Cascade Hatchery**

Cascade Hatchery is located off Highway 84 just above Bonneville Dam. Cascade Hatchery rears coho salmon that are acclimated and released in the Yakima and Umatilla River Basins.

The 1988 to 1997 brood years of Tanner Creek stock coho released in the Umatilla River survived at an average rate of 0.58%, and ranged from 0.05% to 3.17% (Table 7). The same brood years and stock coho released in the Yakima River survived at an average rate of 0.31%, and ranged from 0.05% to 1.99% (Table 7). Survival for these two coho programs has been relatively low since the 1988 brood year (Figure 8), and is generally lower than the survival of the same stock released below



Bonneville Dam (Table 7). These two programs did not show the increased survival in the 1997 brood seen for coho released below Bonneville Dam (Figures 2, 8 & 9).

Ocean catch of Tanner Creek stock coho released in the Umatilla and Yakima Rivers was mainly in Oregon and Washington coastal fisheries (Table 8). Freshwater recoveries of these coho were mainly sport and gillnet fisheries (Table 9). Unlike coho released below Bonneville Dam, the coho released above the dam contributed to gillnet fisheries above the dam, about 20% of the average total freshwater percent survival (Table 9). Percent survival to hatchery recovery for Tanner Creek stock coho released in the Umatilla and Yakima Rivers was lower than that for the same stock released below the dam (Table 9). This may be related to the sampling programs for CWT coho in the Umatilla and Yakima basin escapement.

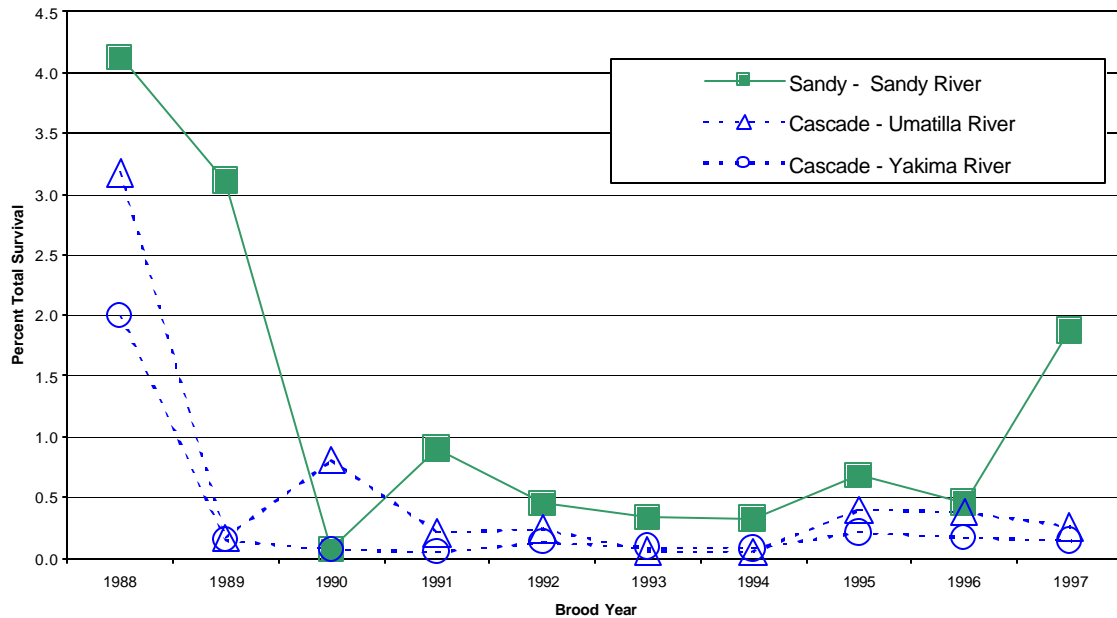


Figure 8. Percent survival by brood for Sandy & Cascade Hatchery coho programs.

**Bonneville Hatchery**

Bonneville Hatchery is located on the Columbia River off Highway 84 just below Bonneville Dam. Bonneville Hatchery rears and releases up-river bright fall chinook, sockeye and coho salmon. Bonneville Hatchery reared and released spring chinook salmon smolts until the 1992 brood year for Umatilla River releases, and the 1993 brood for releases in the West Fork Hood River. Appendix A reports CWT release and recovery data for the 1986 through 1993 broods for these programs.

Bonneville Hatchery tule stock fall chinook production was discontinued after the 1995 brood year. Brood years 1986 to 1995, released at Tanner Creek percent survival averaged 0.08%, and ranged from 0.02% to 0.21% (Table 3). There is no pattern in survival of these tule fall chinook other than consistently low survival (Figure 9). Ocean catch for these fish was in West Coast Vancouver Island and Washington Coastal fisheries (Table 8). Freshwater recoveries were almost exclusively hatchery returns (Table 9).

Bonneville Hatchery releases up-river bright stock fall chinook in Tanner Creek, at Bonneville Hatchery, and in the Umatilla River. Average percent survival for the 1986 to 1995 broods, released in Tanner Creek was 0.32%, and for fish released in Umatilla River was 0.58% (Table 3). It is not clear why fish released in the

Umatilla River had higher survival, but their average survival does not include data from all 10 brood years. Survival dropped after the 1986 brood year for both groups and has been consistently low since then, except for a slightly increased survival for the 1993 brood release at Tanner Creek (Figure 9). Ocean catch for both groups was mainly in Alaskan and Canadian (West Coast Vancouver Island and North Central British Columbia) fisheries (Table 8). Freshwater recoveries were mainly hatchery returns for both groups, with freshwater catch (sport and gillnet combined) accounting for about 40% of the total average freshwater recoveries (Table 9). However, percent survival to gillnet fisheries above Bonneville Dam was 0.10% for fish released in the Umatilla compared to 0.03% for fish released at Tanner Creek (Table 9).

The 1988 to 1997 brood years of Bonneville Hatchery stock coho survived at an average rate of 1.28%, and ranged from 0.42% to 3.14% (Table 7). Survival of Bonneville Hatchery coho generally declined from the 1988 to 1995 brood years, and has been fairly low since then (Figure 9). Ocean catch was mainly in Oregon and Washington coastal fisheries (Table 8). Bonneville Hatchery coho freshwater recoveries are mainly hatchery returns, with freshwater sport and lower river gillnet catch comprising 22% of the average freshwater recoveries (Table 9).

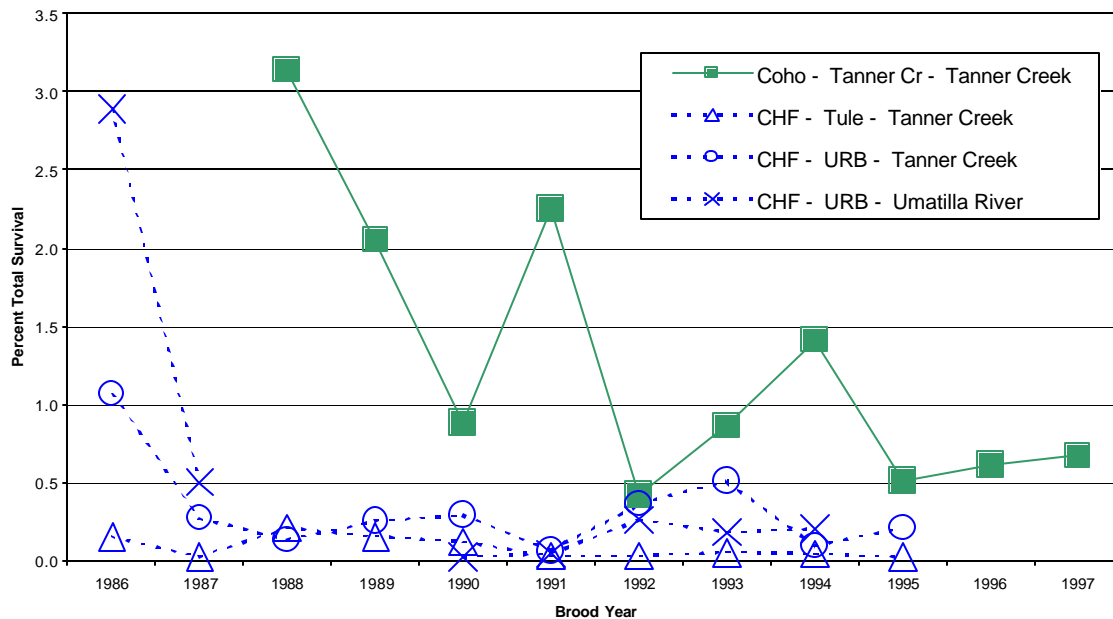


Figure 9. Percent survival by brood year for Bonneville Hatchery programs. URB = Up-River Bright stock.

### 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. Coho reared by Oxbow Hatchery are released at Tanner Creek, Youngs Bay, or Umatilla River after acclimation and/or extended rearing. For results from these programs see the Bonneville, CEDC, and Cascade discussions above. The Spring chinook from Oxbow are transferred to Clackamas Hatchery for rearing and release, results are reported under the Clackamas Hatchery section. Wahkeena Pond, located near Multnomah Falls State Park off Highway 84 was operated as a coho rearing satellite of Oxbow Hatchery through the 1992 brood. Release and recovery data for Wahkeena Pond CWT coho is reported in Appendix A. Wahkeena pond is now being developed as a public fishing area instead of a hatchery rearing facility.

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

Percent survival for the 1986 to 1995 brood Deschutes River stock spring chinook released in the Deschutes River averaged 0.74%, and ranged from 0.08% to 1.92% (Table 5). Survival over this time frame has generally declined for this program (Figure 10). The very few ocean recoveries of Round Butte Hatchery spring chinook were in Washington and British Columbia fisheries (Table 8, Appendix A). Freshwater recoveries were mainly hatchery returns, with freshwater catch (sport, gillnet, and tribal subsistence/ceremonial combined) accounting for about 35% of the total average freshwater recoveries (Table 9).

There are only 3 brood years of data available for Deschutes River stock spring chinook released in the West Fork Hood River (1991, 1994, and 1995). Percent survival for these brood years averaged 0.01%, and ranged from 0.00% to 0.03% (Table 5). There were no ocean recoveries of these fish (Appendix A), and the freshwater recoveries were essentially all at hatcheries or fish traps (Table 9).

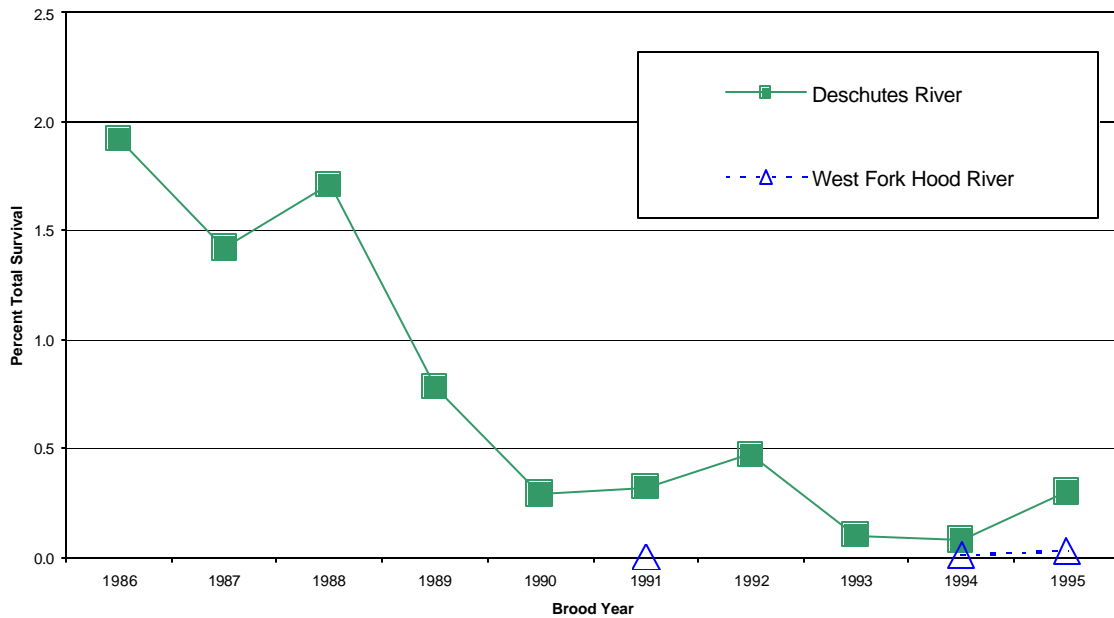


Figure 10. Percent survival by brood year for Round Butte Hatchery programs.

### Oak Springs Hatchery

Oak Springs Hatchery is located on the Deschutes River 3 miles north of Maupin. Oak Springs Hatchery rears and releases summer steelhead, winter steelhead, and rainbow trout. The rainbow trout have not been coded-wire tagged for evaluation.

Average percent survival of the 1993 to 1995 brood Hood River stock winter steelhead reared at Oak Springs and released in East Fork Hood River was 0.26%, and ranged from 0.05% to 0.38% (Table 6). There were only freshwater recoveries for this group, which were predominately in freshwater sport fisheries (Table 9).

### **Wizard Falls Hatchery**

Wizard Falls Hatchery is located on the Metolius 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 southeast of Bend. Fall River Hatchery rears and releases cutthroat, brook, and rainbow trout. None of these fish have been coded-wire tagged for evaluation.

### **Umatilla Hatchery**

Umatilla Hatchery, constructed in 1990, is located on the Columbia River adjacent to Irrigon Hatchery. Umatilla Hatchery rears up-river bright fall chinook, Carson stock spring chinook, and summer steelhead trout. Starting with the 1991 brood year, Umatilla Hatchery took over production of spring and fall chinook salmon for the Umatilla River from Irrigon Hatchery, and production of summer steelhead for the Umatilla River from Oak Spring Hatchery.

Percent survival of the 1991 to 1995 brood years of Umatilla Hatchery up-river bright stock fall chinook averaged 0.05%, and ranged from 0.00% to 0.12% (Table 3). Ocean catch was primarily in Alaska and British Columbia fisheries (Table 8, Appendix A). Freshwater recoveries were mainly hatchery returns, with above Bonneville Dam gillnet catch accounting for 33% of the total average freshwater recoveries (Table 9).

Percent survival of the 1991 to 1995 brood years of Umatilla Hatchery Carson stock spring chinook averaged 0.15%, and ranged from 0.00% to 0.64% (Table 5). Survival was consistently below 0.1% except for the 1995 brood year which jumped to 0.64% (Figure 11). The very few ocean recoveries were in Alaska and California fisheries (Appendix A). Freshwater recoveries were mainly hatchery returns, with recoveries on spawning grounds accounting for 29% of the total average freshwater recoveries (Table 9).

Percent survival of the 1991 to 1996 brood years of Umatilla Hatchery summer steelhead averaged 0.41%, and ranged from 0.08% to 0.98% (Table 6). Survival was consistently between 0.3% and 0.4% except for the 1991 and 1994 brood years (Figure 11). The 1 ocean recovery was in a North Central British Columbia fishery (Appendix A). Freshwater recoveries were mainly hatchery returns, with catch (freshwater sport, and above Bonneville Dam gillnet) accounting for 21% of the total average freshwater recoveries (Table 9).

### **Irrigon Hatchery**

Irrigon Hatchery is located on the Columbia River off Highway 730 near Irrigon. Irrigon rears and releases summer steelhead and rainbow trout. Starting with the 1991 brood year production of spring and fall chinook salmon for the Umatilla River was taken over by the new Umatilla Hatchery. Release and recovery data for Irrigon Hatchery fall and spring chinook salmon is reported in Appendix A.

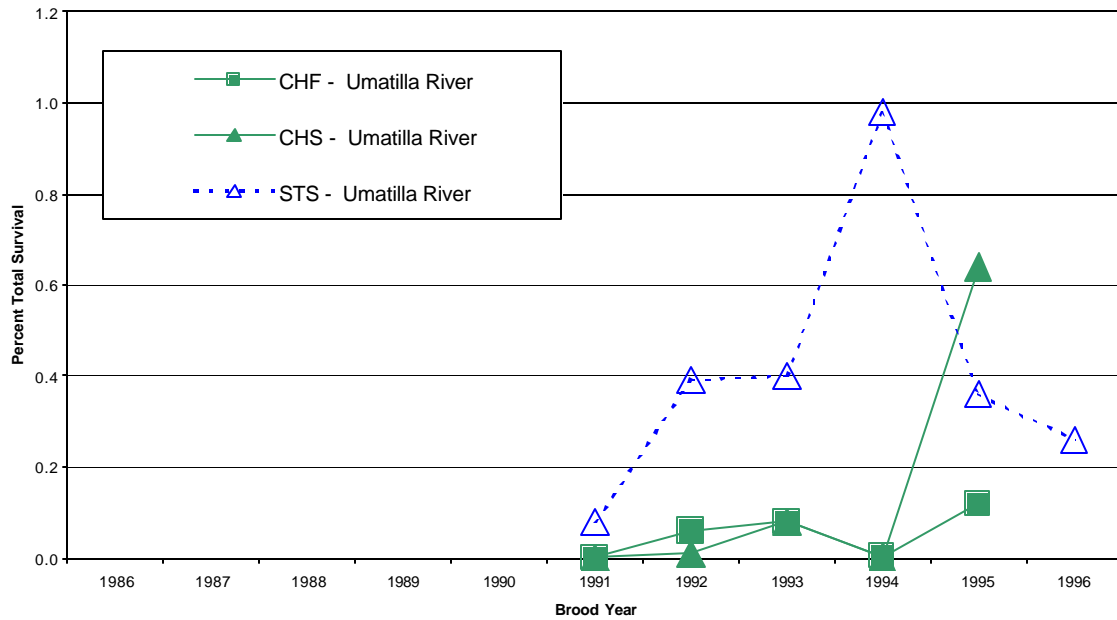


Figure 11. Percent survival by brood year for Umatilla Hatchery programs.

The 1987 to 1996 brood years Imnaha River stock summer steelhead reared at Irrigon Hatchery and released in Little Sheep Creek averaged 0.43% percent survival, and ranged from 0.01% to 1.04% (Table 6). Survival was generally between 0.2% and 0.5% except for two years of survival over 1.0% followed 1 year at 0.01% (Figure 12). The very few ocean recoveries were in British Columbia fisheries (Appendix A). Freshwater recoveries were mainly hatchery returns, with catch accounting for 44% of the total average freshwater recoveries (Table 9).

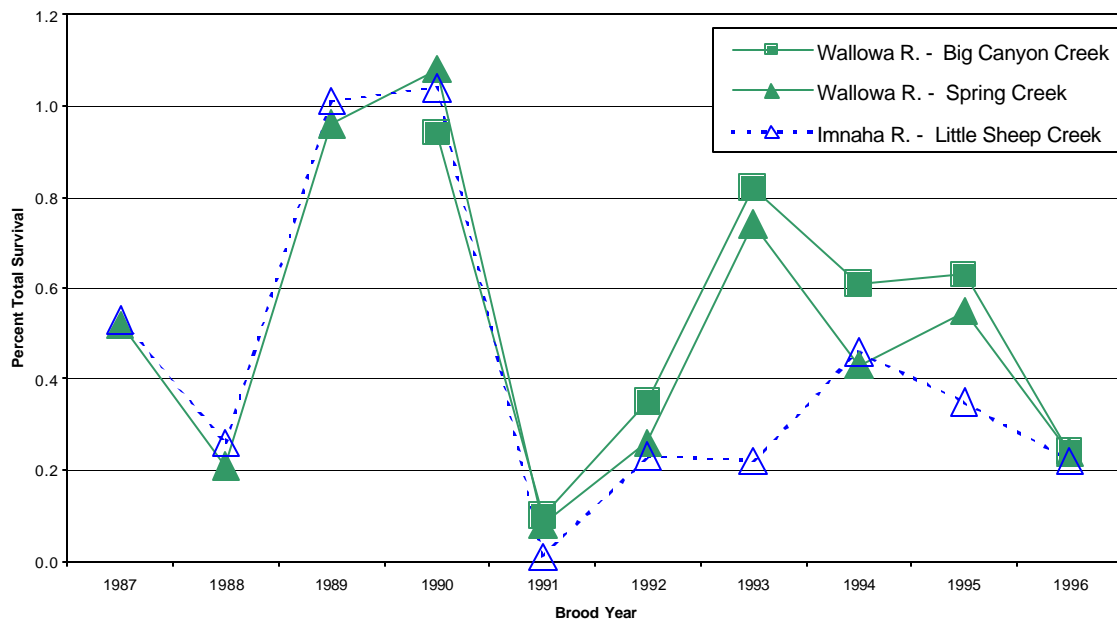


Figure 12. Percent survival by brood year for Irrigon/Wallowa Hatchery programs.

**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. In recent years Lookingglass Hatchery has begun a spring chinook captive broodstock program, based on wild fingerlings collected in the Grande Ronde Basin.

Percent survival of the 1986 to 1995 brood years of Rapid River stock spring chinook released in Lookingglass Creek averaged 0.13%, and ranged from 0.03% to 0.35% (Table 5). Survival peaked with the 1988 brood, was consistently 0.1% or below for 1990 to 1994 broods, then increased to over 0.3% in the 1995 brood (Figure 13). The very few ocean recoveries were in Oregon and California fisheries (Appendix A). Hatchery returns accounted for 91% of the total average freshwater recoveries (Table 9).

Percent survival of the 1986 to 1995 brood years of Imnaha stock spring chinook released in Imnaha River averaged 0.12%, and ranged from 0.01% to 0.35% (Table 5). Survival peaked with the 1988 brood, was consistently 0.1% or below for 1990 to 1994 broods, then increased to over about 0.2% in the 1995 brood (Figure 13). The very few ocean recoveries were in Washington and California fisheries (Appendix A). Freshwater recoveries were mainly hatchery returns, with recoveries on spawning grounds accounting for 18% of the total average freshwater recoveries (Table 9).

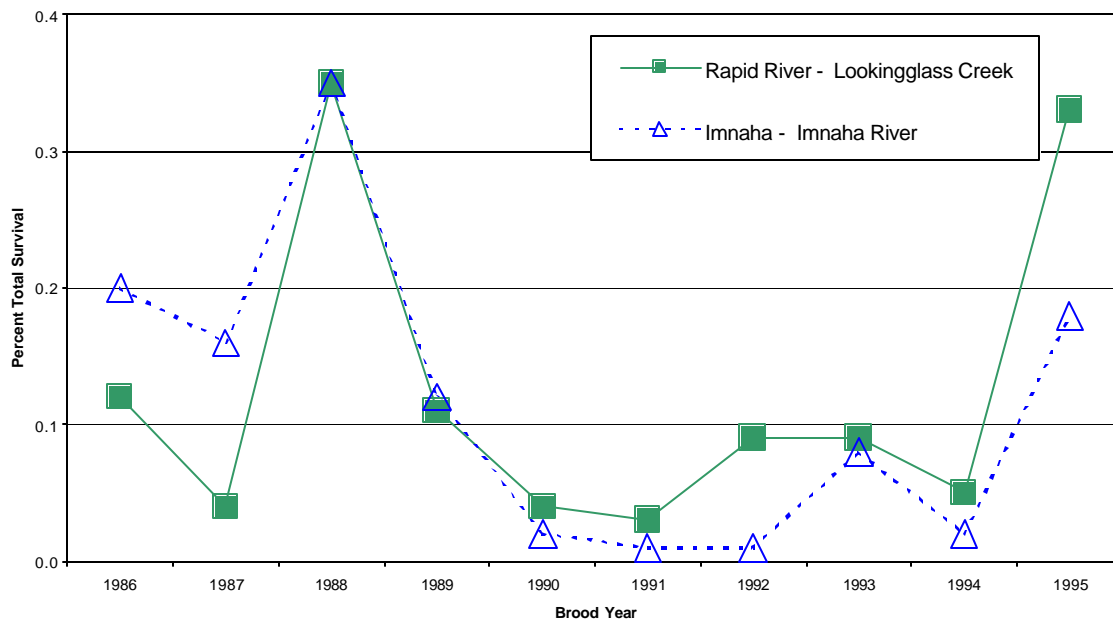


Figure 13. Percent survival by brood year for Lookingglass Hatchery programs.

### Wallowa Hatchery

Wallowa Hatchery is located on the Wallowa River near Enterprise. The Wallowa Hatchery rears and releases summer steelhead and rainbow trout. The rainbow trout have not been tagged for evaluation.

The 1990 to 1996 brood years Wallowa stock summer steelhead reared at Irrigon and Wallowa hatcheries and released in Big Canyon Creek averaged 0.53% survival, and ranged from 0.10% to 0.94% (Table 6). Survival was variable for the first 4 brood years (1990 to 1993), but has generally declined since the 1993 brood year (Figure 12). The 5 ocean recoveries were in British Columbia (4) and Oregon (1) fisheries

(Appendix A). Freshwater recoveries were mainly in fisheries (sport and above Bonneville Dam gillnet catch), with hatchery returns accounting for 37% of the total average freshwater recoveries (Table 9).

The 1987 to 1996 brood years Wallowa stock summer steelhead reared at Irrigon, acclimated at Wallowa Hatchery and released in Spring Creek averaged 0.51% survival, and ranged from 0.08% to 1.08% (Table 6). Survival was variable for the 1987 through 1993 brood years, but has generally declined since the 1993 brood year (Figure 12). The very few ocean recoveries were in Alaska and British Columbia fisheries (Appendix A). Freshwater recoveries were mainly in fisheries (sport and above Bonneville Dam gillnet catch), with hatchery returns accounting for 36% of the total average freshwater recoveries (Table 9).

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APPENDIX A



Appendix Table A. Coded-wire-tagged salmon and steelhead released by ODFW in the Columbia Basin, release and recovery data. Chinook 1986-1995, steelhead 1987-1996, and coho 1998-1997 brood years. Stock sources: N = Native; H = Hatchery; M = Mixed. AK = Alaska, NCBC = North Central British Columbia, WCVI = West Coast Vancouver Island, GST = Georgia Strait, PS = Puget Sound, WA = Washington Coast, CA = California. Oregon ocean areas are displayed in Figure 1. URB = Columbia River Upriver Bright Stock

Hatchery,				Ocean Catch																			% Surv.
Stock source (H, N, M)		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries						
brood, tagcode	Stock			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5	
FALL CHINOOK SALMON																							
Big Creek (Tule):																							
H	1986 073813	Big Creek	Big Cr	03/27/87	50,281	1,059,480	3.02	0	0	6	0	0	32	0	0	0	0	0	0	0	0	0	0.12
H	1986 073814	Big Creek	Big Cr	03/27/87	50,880	1,071,981	3.02	0	0	15	0	3	7	8	1	0	0	0	5	0	5	10	0.11
H	1986 073319	Big Creek	Big Cr	05/07/87	50,568	2,613,661	5.67	0	0	26	3	10	27	0	0	7	0	0	0	0	11	15	0.20
H	1986 073817	Big Creek	Big Cr	05/10/87	51,413	2,638,036	5.67	0	4	32	4	8	24	3	0	12	7	0	0	0	7	19	0.24
H	1987 074559	Big Creek	Big Cr	04/05/88	52,980	954,332	3.04	0	0	5	0	5	3	0	3	0	0	0	0	0	6	5	0.05
H	1987 074560	Big Creek	Big Cr	04/05/88	51,721	931,643	3.04	0	0	3	0	0	10	4	0	3	0	0	0	0	7	4	0.06
H	1987 074561	Big Creek	Big Cr	04/25/88	52,744	611,983	4.65	0	0	0	0	0	9	0	0	0	0	0	0	0	3	5	0.03
H	1987 074562	Big Creek	Big Cr	04/25/88	51,851	601,619	4.65	0	0	5	0	0	1	0	0	0	0	0	0	0	3	4	0.03
H	1987 074563	Big Creek	Big Cr	05/10/88	52,227	2,896,303	5.32	0	0	5	0	5	2	0	0	0	0	0	0	1	7	3	0.04
H	1987 074601	Big Creek	Big Cr	05/10/88	51,501	2,856,040	5.32	0	0	14	0	5	2	0	0	0	2	0	0	0	4	4	0.06
H	1988 075009	Big Creek	Big Cr	04/17/89	53,481	1,952,443	3.07	0	0	16	0	0	15	0	0	2	0	0	0	1	22	13	0.13
H	1988 075010	Big Creek	Big Cr	04/17/89	53,019	1,951,687	3.07	0	5	17	0	3	8	0	0	4	1	0	0	0	11	12	0.12
H	1988 074335	Big Creek	Big Cr	04/28/89	53,000	657,699	3.88	0	2	11	0	0	16	0	0	4	0	0	0	0	12	9	0.10
H	1988 074521	Big Creek	Big Cr	04/28/89	52,782	657,465	3.88	0	0	15	0	2	3	0	0	0	0	0	0	0	9	7	0.07
H	1988 074337	Big Creek	Big Cr	05/08/89	51,707	2,678,130	5.82	0	0	25	0	9	11	0	0	0	0	0	0	4	31	25	0.20
H	1988 074336	Big Creek	Big Cr	05/08/89	52,027	2,678,586	5.83	0	0	16	0	4	47	0	0	1	0	0	0	0	50	14	0.25
H	1989 074256	Big Creek	Big Cr	04/20/90	26,506	897,812	4.82	0	0	4	0	0	14	0	0	3	0	0	0	0	13	4	0.14
H	1989 074255	Big Creek	Big Cr	04/20/90	27,059	460,645	4.88	0	0	17	0	0	18	0	0	0	0	0	0	0	13	7	0.20
H	1989 074259	Big Creek	Big Cr	05/05/90	27,201	2,734,370	6.02	0	0	8	0	0	23	0	0	7	0	0	0	1	8	10	0.21
H	1989 074261	Big Creek	Big Cr	05/11/90	27,502	3,234,064	5.84	3	2	6	0	8	1	0	0	0	0	0	0	0	6	4	0.11
H	1989 074759	Big Creek	Big Cr	05/31/90	26,698	604,487	8.10	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0.01
H	1989 074761	Big Creek	Big Cr	05/31/90	27,601	605,838	8.10	0	0	0	0	0	1	0	0	0	0	0	0	0	2	2	0.02
H	1989 074762	Big Creek	Big Cr	05/31/90	27,115	603,640	8.10	0	0	4	0	0	0	0	0	0	0	0	0	0	0	3	0.03
H	1989 074901	Big Creek	Big Cr	05/31/90	26,907	605,980	8.10	0	0	4	0	0	2	0	0	0	0	0	0	0	1	3	0.04
H	1990 074262	Big Creek	Big Cr	04/01/91	26,841	1,935,399	3.06	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.01
H	1990 074401	Big Creek	Big Cr	04/07/91	25,732	1,923,163	3.13	0	0	12	0	0	0	0	0	0	0	0	0	0	2	4	0.07
H	1990 075519	Big Creek	Big Cr	04/25/91	53,151	1,187,057	4.66	0	0	3	0	0	5	0	0	0	0	0	0	1	14	6	0.05
H	1990 075520	Big Creek	Big Cr	05/31/91	51,970	5,835,334	5.85	3	0	31	4	0	3	0	0	0	0	0	0	0	10	17	0.13
H	1991 074947	Big Creek	Big Cr	03/30/92	26,473	1,377,150	3.43	0	6	12	0	0	5	0	0	0	0	0	0	2	9	3	0.14
H	1991 074944	Big Creek	Big Cr	03/30/92	25,971	1,376,955	4.29	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0.02
H	1991 075757	Big Creek	Big Cr	04/16/92	26,987	612,087	4.77	0	0	18	0	9	0	0	0	16	0	0	0	1	34	10	0.33
H	1991 075758	Big Creek	Big Cr	04/16/92	27,598	613,253	5.06	0	0	16	0	0	0	0	0	0	0	0	0	3	31	6	0.20
H	1991 075759	Big Creek	Big Cr	05/08/92	25,706	2,911,921	5.98	0	0	14	0	0	0	0	0	0	0	0	0	2	22	4	0.16

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																	% Surv.				
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries								
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3		4	5	6+	
FALL CHINOOK SALMON (Continued)																									
Big Creek (Tule)(Continued):																									
H	1991 075760	Big Creek	Big Cr	05/08/92	27,266	2,913,560	6.04	0	0	7	0	0	1	0	0	0	0	0	3	39	7	0	0	0.21	
H	1992 076022	Big Creek	Big Cr	04/30/93	27,176	655,391	4.40	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0.02	
H	1992 076021	Big Creek	Big Cr	04/30/93	27,048	660,102	4.55	0	0	5	0	0	0	0	0	0	0	0	1	8	6	0	0	0.07	
H	1992 076024	Big Creek	Big Cr	05/17/93	26,064	2,853,284	6.24	0	0	0	0	0	0	0	0	0	0	0	3	7	3	0	0	0.05	
H	1992 076023	Big Creek	Big Cr	06/01/93	25,678	3,732,284	6.31	0	0	4	0	0	0	0	0	0	0	0	0	16	9	0	0	0.11	
H	1993 070547	Big Creek	Big Cr	04/15/94	52,289	1,240,973	4.77	0	0	4	0	0	0	0	0	0	0	0	5	36	14	0	0	0.11	
H	1993 070548	Big Creek	Big Cr	05/16/94	53,136	5,784,742	6.05	6	25	13	1	2	19	0	0	3	0	0	4	64	30	2	0	0.32	
H	1994 070952	Big Creek	Big Cr	04/13/95	51,851	3,761,417	3.22	0	0	0	0	0	0	0	0	0	0	3	1	2	5	1	0	0.02	
H	1994 076141	Big Creek	Big Cr	04/26/95	52,767	1,742,555	4.01	0	0	4	0	0	2	0	0	0	0	0	2	15	9	0	0	0.06	
H	1994 076144	Big Creek	Big Cr	05/22/95	54,138	5,684,812	6.18	0	0	8	0	0	3	0	0	0	0	0	3	25	14	0	0	0.10	
H	1995 070238	Big Creek	Big Cr	04/03/96	52,284	2,196,444	3.08	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00	
H	1995 071142	Big Creek	Big Cr	04/19/96	52,506	1,282,744	4.63	0	0	0	0	0	0	0	0	0	0	0	0	12	10	0	0	0.04	
H	1995 070550	Big Creek	Big Cr	05/10/96	52,273	5,991,604	5.88	0	0	0	0	0	0	0	0	0	0	0	0	11	8	0	0	0.04	
H	1986 073815	Tanner Cr	Big Cr	04/16/87	53,187	438,125	4.28	0	2	11	0	8	15	0	0	4	0	0	0	10	10	0	0	0.12	
H	1986 073816	Tanner Cr	Big Cr	04/16/87	53,187	438,125	4.28	0	0	11	0	0	7	0	3	0	0	0	0	1	6	21	0	0	0.09
Big Creek (Rogue):																									
N	1986 073453	Rogue R	Big Cr	05/29/87	10,393	10,750	6.21	0	0	0	0	0	7	0	0	0	3	0	9	5	7	0	0	0.30	
N	1986 073454	Rogue R	Big Cr	05/29/87	10,329	10,683	6.21	0	0	0	0	0	5	0	0	3	11	0	3	1	1	1	0	0.24	
N	1986 073455	Rogue R	Big Cr	05/29/87	10,316	10,670	6.21	0	0	4	0	0	2	0	0	6	4	2	0	2	2	6	0	0	0.27
N	1986 073456	Rogue R	Big Cr	05/29/87	10,370	10,726	6.21	0	0	3	0	0	0	0	0	7	29	2	6	0	2	3	2	0	0.52
N	1986 073457	Rogue R	Big Cr	05/29/87	10,180	10,529	6.21	0	0	4	0	0	2	2	0	11	11	0	0	1	6	2	1	0	0.39
N	1986 073463	Rogue R	Big Cr	08/17/87	10,861	10,861	36.29	0	0	0	0	0	33	7	12	25	182	9	16	36	45	91	2	0	4.29
N	1986 073501	Rogue R	Big Cr	08/17/87	10,483	10,483	36.29	0	0	0	0	0	19	1	32	47	126	13	36	26	48	39	1	0	3.78
N	1986 073502	Rogue R	Big Cr	08/17/87	9,941	9,941	36.29	0	0	0	0	0	3	5	10	24	100	10	15	26	24	43	9	0	2.75
N	1986 073503	Rogue R	Big Cr	08/17/87	10,198	10,198	36.29	0	0	0	0	0	7	2	25	38	146	9	47	25	20	43	9	0	3.69
N	1986 073504	Rogue R	Big Cr	08/17/87	10,704	10,704	36.29	0	0	11	0	0	15	8	20	41	197	5	21	22	58	43	2	0	4.18
N	1986 073458	Rogue R	Big Cr	10/05/87	11,102	11,102	43.18	0	0	10	3	0	22	4	0	80	90	5	27	12	19	58	12	0	3.08
N	1986 073459	Rogue R	Big Cr	10/05/87	10,880	10,880	43.18	0	0	22	0	0	20	2	7	26	103	2	5	21	25	56	0	0	2.70
N	1986 073460	Rogue R	Big Cr	10/05/87	10,401	10,401	43.18	0	0	5	0	0	28	5	1	33	54	4	19	21	24	47	4	0	2.37
N	1986 073461	Rogue R	Big Cr	10/05/87	9,923	9,923	43.18	0	0	27	0	3	6	5	17	12	105	9	38	17	21	62	0	0	3.32
N	1986 073462	Rogue R	Big Cr	10/05/87	10,493	10,493	43.18	0	0	15	0	0	21	0	12	35	66	0	28	10	14	46	1	0	2.46
H	1987 073535	Rogue R	Big Cr	05/19/88	10,829	11,197	5.74	0	0	0	0	0	0	0	0	6	0	0	0	0	1	3	0	0	0.09
H	1987 073536	Rogue R	Big Cr	05/19/88	9,730	10,061	5.74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1987 073537	Rogue R	Big Cr	05/19/88	10,486	10,843	5.74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1987 073538	Rogue R	Big Cr	05/19/88	10,373	10,726	5.74	0	0	0	0	0	2	2	0	4	4	0	0	1	1	0	0	0	0.13
H	1987 073539	Rogue R	Big Cr	05/19/88	10,433	10,788	5.74	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0.04

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			%			
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)												Freshwater Recoveries						Surv.		
brood, tagcode Hatchery				Date	Ad+CWT		Total	AK	NCBC	WCVI	GST	PS	WA	Oregon Areas					CA	2	3	4	5		6+	
FALL CHINOOK SALMON (Continued)																										
Big Creek (Rogue)(Continued):																										
H	1987 074141	Rogue R	Big Cr	08/22/88	10,350	10,728	34.36	0	0	11	0	0	23	2	10	40	82	0	23	20	22	29	5	0	2.60	
H	1987 074142	Rogue R	Big Cr	08/22/88	10,088	10,456	34.36	0	0	10	0	0	12	2	14	44	89	8	5	20	14	39	0	0	2.59	
H	1987 074143	Rogue R	Big Cr	08/22/88	10,052	10,419	34.36	0	0	15	3	5	10	0	12	35	93	3	6	20	10	41	1	0	2.60	
H	1987 074144	Rogue R	Big Cr	08/22/88	10,143	10,513	34.36	0	2	0	0	0	21	5	19	34	46	7	11	21	26	32	1	0	2.26	
H	1987 074145	Rogue R	Big Cr	08/22/88	9,982	10,346	34.36	0	0	4	0	0	29	4	4	28	104	3	3	18	15	34	1	0	2.49	
H	1987 074136	Rogue R	Big Cr	10/04/88	9,433	9,777	44.90	0	0	22	0	0	44	7	22	59	91	2	20	36	59	79	4	0	4.79	
H	1987 074137	Rogue R	Big Cr	10/04/88	9,157	9,491	44.90	0	0	18	7	0	42	4	10	34	41	13	17	32	54	74	1	0	3.81	
H	1987 074138	Rogue R	Big Cr	10/04/88	9,244	9,581	44.90	0	0	17	0	0	42	14	18	37	95	12	27	23	39	103	5	0	4.75	
H	1987 074139	Rogue R	Big Cr	10/04/88	9,225	9,562	44.90	0	0	13	3	9	33	10	10	41	92	6	11	22	57	84	4	0	4.34	
H	1987 074140	Rogue R	Big Cr	10/04/88	9,046	9,376	44.90	0	0	25	0	0	61	6	29	32	70	3	27	21	43	63	4	0	4.31	
H	1988 073346	Rogue R	Big Cr	05/23/89	10,923	10,970	6.39	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.01
H	1988 073540	Rogue R	Big Cr	05/23/89	10,402	10,446	6.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.02
H	1988 074159	Rogue R	Big Cr	05/23/89	10,117	10,160	6.39	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	0	0	0.05
H	1988 074160	Rogue R	Big Cr	05/23/89	10,261	10,305	6.39	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	0.03
H	1988 074161	Rogue R	Big Cr	05/23/89	10,070	10,113	6.39	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0	0	0	0.05
H	1988 074162	Rogue R	Big Cr	08/21/89	10,409	10,440	35.43	0	0	5	6	0	22	5	10	38	31	0	6	14	62	49	0	0	0	2.38
H	1988 074163	Rogue R	Big Cr	08/21/89	10,779	10,811	35.43	0	0	15	0	0	8	2	20	40	14	6	6	10	27	27	0	0	0	1.64
H	1988 074201	Rogue R	Big Cr	08/21/89	10,556	10,588	35.43	0	0	16	4	0	13	2	10	33	10	3	8	12	63	23	1	0	0	1.88
H	1988 074202	Rogue R	Big Cr	08/21/89	10,808	10,840	35.43	0	0	10	0	0	20	0	11	20	42	6	4	8	43	41	2	0	0	1.93
H	1988 074203	Rogue R	Big Cr	08/21/89	9,914	9,944	35.43	0	0	0	0	0	22	2	7	33	13	0	6	11	50	42	0	0	0	1.88
H	1988 074204	Rogue R	Big Cr	08/21/89	10,452	10,483	35.43	0	2	4	4	0	14	2	7	24	23	0	2	8	40	29	1	0	0	1.56
H	1988 074205	Rogue R	Big Cr	08/21/89	10,300	10,331	35.43	0	0	0	0	0	7	2	5	16	22	3	3	8	69	48	1	0	0	1.79
H	1988 074206	Rogue R	Big Cr	08/21/89	9,635	9,664	35.43	0	2	24	0	0	16	14	17	34	41	2	2	15	55	41	0	0	0	2.75
H	1988 074207	Rogue R	Big Cr	08/21/89	10,382	10,413	35.43	0	0	4	0	0	41	0	11	52	20	3	7	8	36	32	0	0	0	2.06
H	1988 074208	Rogue R	Big Cr	08/21/89	10,326	10,357	35.43	0	0	10	0	0	20	2	9	50	34	6	16	14	60	37	0	0	0	2.50
H	1989 074338	Rogue R	Big Cr	06/05/90	10,067	27,703	7.31	0	0	0	0	0	0	0	0	9	0	0	0	1	5	4	0	0	0	0.23
H	1989 074339	Rogue R	Big Cr	06/05/90	10,132	27,770	7.31	0	0	0	0	0	0	0	0	8	0	0	0	3	5	3	0	0	0	0.19
H	1989 074340	Rogue R	Big Cr	06/05/90	10,040	27,676	7.31	0	0	0	0	0	2	0	0	10	0	0	0	2	1	0	0	0	0	0.15
H	1989 074341	Rogue R	Big Cr	06/05/90	9,859	27,490	7.31	0	0	5	0	0	0	0	0	8	0	0	0	0	0	1	0	0	0	0.14
H	1989 074342	Rogue R	Big Cr	06/05/90	10,058	27,695	7.31	0	0	0	0	0	0	0	0	7	0	0	0	0	2	8	0	0	0	0.17
H	1989 074343	Rogue R	Big Cr	06/05/90	9,904	27,537	7.31	0	0	0	0	0	2	1	0	6	0	0	4	1	0	0	1	0	0	0.15
H	1989 074344	Rogue R	Big Cr	06/05/90	9,841	27,471	7.31	0	0	0	0	0	2	0	0	16	0	0	4	0	2	1	0	0	0	0.25
H	1989 074345	Rogue R	Big Cr	06/05/90	10,167	27,807	7.31	0	0	0	0	0	4	0	0	6	0	0	6	1	1	2	0	0	0	0.20
H	1989 074346	Rogue R	Big Cr	06/05/90	10,547	28,198	7.31	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0.06
H	1989 074511	Rogue R	Big Cr	08/17/90	10,176	22,184	31.28	0	0	0	0	0	5	2	0	61	3	0	0	10	23	33	4	0	0	1.39
H	1989 074512	Rogue R	Big Cr	08/17/90	10,387	22,397	31.28	0	0	3	0	0	15	4	5	100	3	0	0	15	27	24	1	0	0	1.90
H	1989 074513	Rogue R	Big Cr	08/17/90	10,561	22,574	31.28	0	0	3	3	0	16	2	10	90	3	0	2	7	44	44	1	0	0	2.13

## Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			%			
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					Surv.				
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+		
FALL CHINOOK SALMON (Continued)																										
Big Creek (Rogue) (Continued):																										
H	1989	074514	Rogue R	Big Cr	08/17/90	10,583	22,596	31.28	0	3	5	0	0	22	0	2	98	0	0	10	12	48	31	1	0	2.19
H	1989	074515	Rogue R	Big Cr	08/17/90	10,392	22,402	31.28	0	0	0	0	0	32	0	4	97	9	0	10	14	45	35	3	0	2.40
H	1989	074516	Rogue R	Big Cr	08/17/90	9,977	21,982	31.28	0	0	0	0	0	14	0	0	63	2	0	6	12	32	17	3	0	1.49
H	1990	075650	Rogue R	Big Cr	07/05/91	51,183	249,042	12.22	0	0	0	0	0	15	2	0	44	7	0	6	24	39	35	6	0	0.35
H	1990	075651	Rogue R	Big Cr	08/12/91	50,783	300,645	25.06	0	0	0	0	0	20	4	0	83	0	0	5	39	96	93	16	0	0.70
H	1990	075652	Rogue R	Big Cr	08/23/91	51,043	236,247	35.71	0	0	0	0	0	15	7	0	214	0	3	14	51	147	183	22	0	1.33
H	1991	075716	Rogue R	Big Cr	08/06/92	52,014	217,625	20.90	0	0	0	0	0	0	0	7	0	0	10	10	43	66	0	0	0	0.26
H	1991	075717	Rogue R	Big Cr	08/14/92	52,017	297,258	23.70	0	0	4	0	0	0	0	0	21	0	0	15	9	74	108	2	0	0.45
H	1991	075653	Rogue R	Big Cr	08/26/92	51,786	248,504	30.60	0	0	4	0	0	0	0	2	39	0	0	2	19	125	208	3	0	0.80
H	1992	075737	Rogue R	Big Cr	08/25/93	51,797	242,691	27.82	2	0	2	4	0	0	0	14	177	9	4	51	45	271	181	11	0	1.50
H	1992	070232	Rogue R	Big Cr	08/25/93	52,453	202,027	27.99	0	0	0	3	0	11	0	28	204	23	3	27	44	274	197	16	0	1.61
H	1993	070755	Rogue R	Big Cr	08/04/94	54,731	553,793	23.97	0	0	0	0	0	0	0	0	48	11	3	14	45	74	104	5	0	0.56
H	1993	070756	Rogue R	Big Cr	08/22/94	54,317	250,878	29.82	0	1	0	0	0	1	0	0	89	12	0	36	53	69	119	4	0	0.71
H	1994	070540	Rogue R	Big Cr	08/11/95	26,051	166,503	22.10	0	0	0	0	0	3	0	0	20	16	0	0	5	21	27	1	0	0.37
H	1994	070541	Rogue R	Big Cr	08/11/95	26,215	166,707	22.21	0	4	0	0	0	0	0	18	6	0	0	5	19	27	7	0	0	0.33
H	1994	070542	Rogue R	Big Cr	08/29/95	26,881	175,032	29.41	0	0	0	0	0	0	0	22	2	0	0	0	20	44	2	0	0	0.35
H	1994	070543	Rogue R	Big Cr	08/30/95	26,178	500,356	29.06	0	0	0	0	0	0	3	23	9	0	0	6	12	18	4	0	0	0.29
H	1995	071352	Rogue R	Big Cr	08/26/96	26,791	521,952	31.72	0	0	0	0	0	2	0	7	8	0	0	1	9	19	0	0	0	0.17
H	1995	071353	Rogue R	Klaskanine R NF	07/31/96	25,322	26,178	20.43	0	0	0	0	0	1	0	0	2	4	0	0	1	19	16	1	0	0.17
Bonneville (Tule):																										
H	1986	072950	Tanner Cr	Tanner Cr	03/25/87	53,108	388,177	3.18	0	1	41	0	0	37	7	0	3	0	0	7	34	14	0	0	0	0.27
H	1986	072951	Tanner Cr	Tanner Cr	03/25/87	54,209	396,231	3.18	0	0	12	0	0	20	0	0	15	3	0	2	32	20	0	0	0	0.19
H	1986	072952	Tanner Cr	Tanner Cr	04/16/87	52,455	501,806	4.31	0	0	35	2	8	38	0	2	2	0	2	10	33	22	0	0	0	0.30
H	1986	072953	Tanner Cr	Tanner Cr	04/16/87	52,123	498,634	4.31	0	0	20	0	0	15	0	7	0	0	0	3	19	26	1	0	0	0.17
H	1986	073328	Tanner Cr	Tanner Cr	05/08/87	105,922	343,514	3.57	0	5	11	0	0	0	2	0	0	0	0	4	14	14	3	0	0	0.05
H	1986	073006	Tanner Cr	Tanner Cr	05/08/87	52,096	3,901,063	4.00	0	0	9	0	0	18	0	0	0	10	0	3	23	12	0	0	0	0.14
H	1986	073632	Tanner Cr	Tanner Cr	05/08/87	51,478	3,854,824	4.00	0	0	11	0	0	16	0	0	2	14	0	0	14	10	0	0	0	0.13
H	1987	074553	Tanner Cr	Tanner Cr	03/16/88	52,058	493,345	3.24	0	0	0	0	5	11	0	0	0	0	0	9	1	0	0	0	0	0.05
H	1987	074554	Tanner Cr	Tanner Cr	03/16/88	53,069	502,920	3.24	0	0	24	0	0	7	0	0	0	6	0	2	2	1	0	0	0	0.08
H	1987	074555	Tanner Cr	Tanner Cr	04/18/88	51,605	491,613	5.17	0	0	4	0	0	4	0	0	0	0	0	3	0	0	0	0	0	0.02
H	1987	074556	Tanner Cr	Tanner Cr	04/18/88	52,223	497,499	5.17	0	0	9	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0.02
H	1987	074557	Tanner Cr	Tanner Cr	04/30/88	52,854	4,021,189	4.97	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1987	074558	Tanner Cr	Tanner Cr	04/30/88	53,870	4,098,429	4.97	0	0	4	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0.02
H	1988	074958	Tanner Cr	Tanner Cr	03/20/89	52,727	898,818	3.35	0	0	22	0	8	18	0	0	11	0	3	5	38	10	0	0	0	0.22
H	1988	074960	Tanner Cr	Tanner Cr	03/20/89	52,981	895,229	3.35	0	2	7	0	8	6	0	3	0	2	0	6	37	7	0	0	0	0.15
H	1988	074963	Tanner Cr	Tanner Cr	04/13/89	51,181	623,609	4.48	0	1	10	0	0	6	0	0	2	0	0	2	27	8	0	0	0	0.11

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		%			
stock, (source H, N, M),				Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					% Surv.		
brood, tagcode	Hatchery	Release Site	Date		Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+
FALL CHINOOK SALMON (Continued)																									
Bonneville (Tule) (Continued):																									
H	1988 075003	Tanner Cr	Tanner Cr	04/13/89	52,242	622,985	4.48	0	0	26	0	2	9	0	0	3	0	0	4	24	10	0	0	0.15	
H	1988 075005	Tanner Cr	Tanner Cr	05/02/89	53,773	4,308,420	5.99	0	0	25	0	35	21	0	0	3	5	0	0	1	45	12	0	0	0.27
H	1988 075006	Tanner Cr	Tanner Cr	05/02/89	53,384	4,288,951	5.99	0	0	11	3	0	36	0	2	1	3	0	0	6	31	8	1	0	0.19
H	1989 074252	Tanner Cr	Tanner Cr	05/07/90	26,112	2,010,023	5.32	0	0	13	0	0	3	2	0	0	0	0	0	0	6	6	1	0	0.12
H	1989 074755	Tanner Cr	Tanner Cr	05/07/90	26,768	308,610	5.60	0	3	10	0	0	0	0	0	0	0	0	0	2	5	0	0	0.07	
H	1989 074756	Tanner Cr	Tanner Cr	05/07/90	26,936	328,373	5.61	0	0	0	0	0	4	0	0	4	0	0	0	1	5	1	1	0	0.06
H	1989 074250	Tanner Cr	Tanner Cr	05/07/90	25,922	2,236,864	5.65	0	0	18	0	8	11	1	0	0	0	0	0	8	10	0	0	0.22	
H	1989 074747	Tanner Cr	Tanner Cr	05/07/90	27,046	715,324	6.89	0	0	0	3	0	4	0	0	0	0	0	0	1	12	7	0	0	0.10
H	1989 074750	Tanner Cr	Tanner Cr	05/07/90	27,354	379,804	7.16	0	0	3	0	7	6	0	0	0	0	0	0	2	10	2	0	0	0.11
H	1989 074749	Tanner Cr	Tanner Cr	05/07/90	26,755	396,836	7.53	0	0	12	0	8	6	0	0	0	0	0	0	1	12	5	0	0	0.16
H	1989 074752	Tanner Cr	Tanner Cr	05/07/90	27,192	378,363	7.73	0	0	8	0	0	7	0	0	0	0	0	0	0	11	4	0	0	0.11
H	1990 074407	Big Creek	Tanner Cr	05/24/91	25,382	1,290,411	8.04	0	0	24	0	0	8	0	0	0	0	0	0	8	12	6	0	0	0.23
H	1990 074408	Big Creek	Tanner Cr	05/24/91	24,976	1,290,410	8.06	0	0	3	0	0	3	0	0	0	0	0	0	2	8	9	1	0	0.10
H	1990 074402	Tanner Cr	Tanner Cr	05/10/91	25,336	1,143,105	6.02	0	0	0	0	0	5	0	0	0	0	0	0	0	3	2	1	0	0.04
H	1990 074404	Tanner Cr	Tanner Cr	05/10/91	24,634	1,143,104	6.36	0	0	9	0	0	0	0	0	0	0	0	0	2	3	5	0	0	0.08
H	1991 075753	Big Creek	Tanner Cr	05/01/92	26,705	2,151,279	6.54	0	0	0	0	0	0	0	0	0	0	0	0	1	3	2	0	0	0.02
H	1991 075754	Big Creek	Tanner Cr	05/01/92	26,461	2,151,278	6.54	0	0	3	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0.03
H	1991 075755	Big Creek	Tanner Cr	05/14/92	26,564	1,727,639	6.65	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0.02
H	1991 075756	Big Creek	Tanner Cr	05/14/92	26,875	1,727,639	6.65	0	0	0	0	0	0	0	0	8	0	0	0	0	3	3	0	0	0.05
H	1992 071537	Tanner Cr	Tanner Cr	05/19/93	26,861	535,948	7.96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 075942	Tanner Cr	Tanner Cr	06/01/93	53,487	5,028,917	6.79	0	0	0	0	0	0	0	0	0	0	0	0	1	12	1	1	0	0.03
H	1992 076020	Tanner Cr	Tanner Cr	06/11/93	26,953	1,017,412	7.24	0	0	0	0	0	0	0	0	2	0	0	0	0	9	0	0	0	0.04
H	1993 076143	Tanner Cr	Tanner Cr	05/19/94	52,175	5,866,287	6.85	0	0	2	0	0	0	0	0	0	0	0	0	3	12	9	0	0	0.05
H	1994 070561	Tanner Cr	Tanner Cr	03/15/95	25,204	382,376	3.31	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0.01
H	1994 070562	Tanner Cr	Tanner Cr	04/14/95	26,944	505,966	5.00	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.01
H	1994 070560	Tanner Cr	Tanner Cr	05/15/95	26,197	248,819	5.50	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0.02
H	1995 070544	Tanner Cr	Tanner Cr	03/15/96	27,454	882,260	3.41	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0.02
H	1995 071144	Tanner Cr	Tanner Cr	04/15/96	26,991	1,858,378	5.24	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0.03
H	1995 070545	Tanner Cr	Tanner Cr	05/15/96	26,765	991,075	6.44	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0.02
H	1994 070120	Tule (WA)	Tanner Cr	03/15/95	27,155	1,751,566	3.24	0	0	3	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0.03
H	1994 070121	Tule (WA)	Tanner Cr	04/14/95	26,824	3,567,065	4.80	0	0	2	0	0	0	0	0	0	0	0	0	5	5	4	0	0	0.06
H	1994 070122	Tule (WA)	Tanner Cr	05/15/95	26,747	1,784,239	6.03	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0.02	
H	1995 071155	Tule (WA)	Tanner Cr	03/15/96	26,090	940,053	2.99	0	0	1	0	0	0	0	0	0	0	0	0	1	4	1	0	0	0.03
H	1995 072925	Tule (WA)	Tanner Cr	04/15/96	23,737	1,895,407	4.67	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0.02
H	1995 074731	Tule (WA)	Tanner Cr	05/15/96	26,012	984,415	6.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			%		
stock, (source H, N, M),				Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries					Surv.	
brood,	tagcode	Hatchery	Release Site		Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+
FALL CHINOOK SALMON (Continued)																									
Bonneville (URB):																									
M	1986	074738	Columbia (URB) Tanner Cr	09/08/87	40,060	59,927	18.65	89	92	102	0	0	29	0	0	19	2	0	4	15	78	179	77	7	1.73
M	1986	074732	Columbia (URB) Tanner Cr	09/08/87	40,542	59,782	19.53	63	69	54	0	9	9	0	0	3	11	0	6	12	70	192	102	0	1.48
M	1986	074742	Columbia (URB) Tanner Cr	09/08/87	36,847	59,713	20.24	61	75	112	7	0	20	0	4	11	5	0	4	10	62	156	72	0	1.63
M	1986	074741	Columbia (URB) Tanner Cr	09/08/87	39,452	59,823	20.33	71	56	102	4	0	14	0	0	3	7	0	0	22	77	156	79	8	1.52
M	1986	074737	Columbia (URB) Tanner Cr	09/08/87	38,842	59,987	20.50	63	50	102	0	3	9	0	8	0	0	0	15	90	158	95	4	1.55	
M	1986	074735	Columbia (URB) Tanner Cr	09/08/87	40,470	59,963	20.78	61	75	125	2	0	6	3	0	4	6	0	5	15	89	233	79	6	1.75
M	1986	074721	Columbia (URB) Tanner Cr	09/08/87	32,196	50,257	21.37	41	31	59	3	1	11	5	14	0	2	0	11	74	138	39	2	1.35	
M	1986	074722	Columbia (URB) Tanner Cr	09/08/87	32,283	50,168	21.37	38	54	45	0	2	15	0	0	0	5	0	2	16	46	98	47	1	1.14
M	1986	074719	Columbia (URB) Tanner Cr	09/08/87	31,944	49,929	21.89	35	48	63	9	0	17	0	5	0	6	0	11	42	170	51	1	1.43	
M	1986	074725	Columbia (URB) Tanner Cr	09/08/87	31,823	50,150	22.34	46	25	83	0	0	1	5	0	4	0	0	23	54	115	47	0	1.27	
M	1986	074129	Columbia (URB) Tanner Cr	11/05/87	26,012	58,185	34.36	24	25	38	0	0	3	0	0	0	0	0	1	3	31	9	2	0.52	
M	1986	074315	Columbia (URB) Tanner Cr	11/05/87	27,729	79,452	35.15	2	13	52	0	0	8	3	0	3	7	0	0	15	47	25	2	0.64	
M	1986	074309	Columbia (URB) Tanner Cr	11/05/87	27,983	58,714	36.57	11	30	17	0	0	0	0	0	3	0	0	5	2	9	47	23	4	0.54
M	1986	074317	Columbia (URB) Tanner Cr	11/05/87	27,420	80,811	36.57	7	5	0	0	0	3	0	0	0	0	0	3	7	40	20	0	0.31	
M	1986	074319	Columbia (URB) Tanner Cr	11/05/87	26,148	59,863	38.10	34	32	27	0	0	14	0	0	6	0	2	0	12	58	18	0	0.78	
M	1986	074318	Columbia (URB) Tanner Cr	11/05/87	27,502	74,440	40.11	9	19	29	0	0	1	0	0	0	0	0	1	6	35	15	1	0.42	
M	1986	074320	Columbia (URB) Tanner Cr	11/05/87	27,372	58,861	40.48	16	24	5	4	5	7	0	0	0	2	0	6	20	57	16	1	0.60	
M	1986	074316	Columbia (URB) Tanner Cr	11/05/87	27,817	72,033	41.59	33	46	40	4	0	2	0	0	0	41	0	3	29	88	33	0	1.15	
M	1987	074254	Columbia (URB) Tanner Cr	06/01/88	53,333	3,172,317	5.22	0	3	0	0	0	0	0	0	0	0	0	2	4	14	14	0	0.07	
M	1987	074303	Columbia (URB) Tanner Cr	08/08/88	53,014	2,050,842	11.45	39	24	33	5	7	5	0	0	0	0	0	8	37	99	24	2	0.53	
M	1987	074304	Columbia (URB) Tanner Cr	11/03/88	52,809	517,269	34.62	16	29	36	0	0	6	0	3	0	0	0	6	29	67	10	3	0.39	
M	1987	073555	Columbia (URB) Tanner Cr	03/07/89	24,352	65,431	50.96	4	44	34	2	0	22	0	0	3	2	0	21	27	78	18	0	1.05	
M	1988	075030	Columbia (URB) Tanner Cr	06/26/89	50,424	51,192	6.66	0	6	8	0	0	3	0	0	0	0	0	6	6	22	4	0	0.11	
M	1988	075033	Columbia (URB) Tanner Cr	06/26/89	49,742	50,500	6.66	9	18	3	0	0	0	0	0	0	0	0	6	15	16	5	1	0.15	
M	1989	075408	Columbia (URB) Tanner Cr	07/02/90	49,100	49,727	6.26	26	15	9	0	0	3	0	0	0	0	0	3	13	32	14	1	0.24	
M	1989	075409	Columbia (URB) Tanner Cr	07/02/90	49,282	49,911	6.26	54	11	13	0	0	1	0	0	0	0	0	7	11	22	11	0	0.26	
H	1990	071416	Columbia (URB) Tanner Cr	06/27/91	96,085	117,011	7.51	16	17	7	0	5	0	0	0	0	0	0	1	13	51	24	0	0.14	
H	1990	071417	Columbia (URB) Tanner Cr	06/28/91	98,211	119,120	7.42	31	11	5	0	0	0	0	0	0	0	0	1	14	35	32	1	0.13	
H	1990	075521	Columbia (URB) Tanner Cr	07/22/91	52,810	4,631,842	9.55	19	20	7	0	0	2	0	0	0	0	0	5	6	55	43	2	0.30	
H	1991	076112	Columbia (URB) Tanner Cr	07/15/92	35,162	1,051,028	9.05	4	0	0	0	0	0	0	0	0	0	0	0	2	10	6	1	0.07	
H	1991	076110	Columbia (URB) Tanner Cr	07/15/92	35,219	1,051,028	9.20	3	0	0	0	0	0	0	0	0	0	0	1	4	1	7	0	0.05	
H	1991	076109	Columbia (URB) Tanner Cr	07/15/92	31,782	1,051,028	9.29	7	4	0	0	0	0	0	0	0	0	0	0	1	9	0	0	0.07	
H	1992	070433	Columbia (URB) Tanner Cr	07/21/93	97,104	4,030,615	9.00	42	7	15	0	0	6	0	0	8	0	0	34	69	143	22	2	0.36	
H	1993	075814	Columbia (URB) Tanner Cr	06/14/94	49,055	794,970	6.76	37	18	3	0	0	0	0	0	0	0	0	9	48	64	22	0	0.41	
H	1993	075815	Columbia (URB) Tanner Cr	06/14/94	50,112	795,198	6.95	47	16	4	0	0	0	0	0	3	0	0	14	62	80	31	0	0.51	
H	1993	074954	Columbia (URB) Tanner Cr	07/28/94	53,174	2,071,787	9.28	50	22	5	0	0	2	0	0	0	0	0	13	47	95	29	0	0.49	
H	1993	075816	Columbia (URB) Tanner Cr	07/28/94	51,593	2,071,787	9.28	52	31	5	0	0	0	0	0	0	0	0	17	57	99	24	3	0.56	

Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																				%						
stock, (source H, N, M), brood, tagcode Hatchery	Release Site	Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries												
			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5	6+	Surv.						
FALL CHINOOK SALMON (Continued)																													
Bonneville (URB) (Continued):																													
H	1994 070820	Columbia (URB)	Tanner Cr	06/01/95	53,726	757,624	5.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	5	1	0	0.01
H	1994 070926	Columbia (URB)	Tanner Cr	06/01/95	49,768	418,179	5.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	4	3	0	0.02
H	1994 070819	Columbia (URB)	Tanner Cr	06/01/95	53,472	419,015	5.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	0	0.01
H	1994 076361	Columbia (URB)	Tanner Cr	07/24/95	76,816	4,886,853	9.27	10	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	13	8	0	0.12
H	1995 070921	Columbia (URB)	Tanner Cr	06/12/96	53,525	428,887	5.45	33	14	2	0	0	0	0	0	0	0	0	0	0	0	0	5	10	40	25	0	0.24	
H	1995 070927	Columbia (URB)	Tanner Cr	06/12/96	53,281	428,888	5.67	56	8	0	0	0	0	3	0	0	0	0	0	0	0	0	4	16	64	33	0	0.35	
H	1995 071154	Columbia (URB)	Tanner Cr	06/12/96	53,223	428,887	5.67	77	14	0	0	0	0	3	0	0	0	0	0	0	0	0	2	24	82	51	0	0.48	
H	1995 091712	Columbia (URB)	Tanner Cr	07/31/96	79,953	4,893,902	10.00	39	4	0	0	1	0	0	0	0	0	0	0	0	0	0	4	14	45	30	0	0.17	
M	1988 075034	Columbia (URB)	Mid-Columbia R	06/26/89	50,127	50,379	7.35	9	0	4	4	0	0	0	0	0	0	0	0	0	0	5	8	16	13	0	0.12		
M	1988 075036	Columbia (URB)	Mid-Columbia R	06/26/89	50,923	51,179	7.35	3	3	25	0	0	3	0	0	0	0	0	0	0	0	4	24	32	9	0	0.20		
M	1989 075406	Columbia (URB)	Mid-Columbia R	07/02/90	46,470	49,743	6.41	19	15	15	0	0	2	0	0	0	0	0	0	0	0	17	8	27	10	2	0.25		
M	1989 075407	Columbia (URB)	Mid-Columbia R	07/02/90	46,657	49,943	6.41	44	24	44	0	0	2	0	0	0	0	0	0	0	0	12	16	27	21	2	0.41		
H	1990 074649	Columbia (URB)	Mid-Columbia R	06/27/91	94,213	423,744	7.31	31	22	6	0	0	0	0	0	0	0	0	0	0	0	2	19	50	23	0	0.16		
H	1990 075654	Columbia (URB)	Mid-Columbia R	06/28/91	96,358	424,944	7.50	32	16	16	0	0	0	0	0	0	0	0	0	0	0	2	13	52	39	0	0.18		
H	1993 070818	Columbia (URB)	Hanford Reach	06/17/94	479,106	496,746	7.28	95	42	7	0	0	2	0	0	9	0	0	0	0	0	58	287	270	94	2	0.18		
H	1993 070816	Columbia (URB)	Ringold Pnd (WA)	07/04/94	208,105	792,077	8.25	67	66	2	1	0	1	0	0	0	0	0	0	0	0	26	208	231	83	1	0.33		
H	1993 070817	Columbia (URB)	Ringold Pnd (WA)	07/06/94	217,184	3,466,415	8.32	64	38	10	0	0	0	0	0	0	0	0	0	0	0	25	156	215	55	1	0.26		
H	1986 074038	Columbia (URB)	Umatilla R	03/25/88	42,068	52,317	51.54	92	98	324	12	6	78	8	5	22	4	2	0	280	83	297	100	26	3.43				
H	1986 074039	Columbia (URB)	Umatilla R	03/25/88	38,978	48,474	51.54	106	104	204	17	2	75	5	0	20	7	0	238	61	293	74	1	3.11					
H	1986 074036	Columbia (URB)	Meacham Cr	03/28/88	39,509	50,480	44.46	55	57	228	13	27	49	4	4	4	12	0	4176	77	188	62	2	2.44					
H	1986 074037	Columbia (URB)	Meacham Cr	03/28/88	38,405	49,070	44.46	68	81	183	10	9	38	6	0	31	5	2	4168	73	184	125	1	2.57					
H	1987 074539	Washington URB	Umatilla R	11/04/88	4,438	4,823	46.28	0	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	8	1	0	0.43		
H	1987 074540	Washington URB	Umatilla R	11/04/88	4,289	4,660	46.28	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	1	2	3	0	0.23		
H	1987 074541	Washington URB	Umatilla R	11/04/88	4,533	4,925	46.28	2	4	13	0	0	0	0	0	0	0	0	0	0	0	4	1	4	0	0.62			
H	1987 074536	Washington URB	Umatilla R	11/04/88	24,656	26,858	52.73	13	18	14	0	0	0	0	0	0	0	0	0	2	12	35	8	0	0.41				
H	1987 074537	Washington URB	Umatilla R	11/04/88	23,403	25,493	52.73	39	11	32	0	0	13	0	0	0	3	0	2	1	10	36	5	0	0.65				
H	1987 074538	Washington URB	Umatilla R	11/04/88	25,089	27,330	52.73	9	3	17	0	0	11	0	0	0	15	0	0	2	8	40	19	2	0.50				
H	1990 075618	Columbia (URB)	Umatilla R	03/17/92	26,178	97,801	60.47	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	
H	1990 075619	Columbia (URB)	Umatilla R	03/19/92	26,160	122,639	60.47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0.02		
H	1991 071460	Columbia (URB)	Umatilla R	03/18/93	23,863	68,492	49.84	0	0	3	0	0	0	0	0	0	0	0	0	0	2	1	0	1	0	0.03			
H	1991 071461	Columbia (URB)	Umatilla R	03/18/93	23,239	66,345	52.14	0	4	0	0	0	0	0	0	0	0	0	0	0	2	5	0	0	1	0.05			
H	1992 070255	Columbia (URB)	Umatilla R	03/23/94	23,699	233,629	43.61	0	0	7	0	0	0	0	0	0	0	0	0	34	13	12	1	0	0.29				
H	1992 070252	Columbia (URB)	Umatilla R	04/19/94	23,470	49,824	53.35	0	0	0	0	0	0	0	0	0	0	0	0	15	12	1	0	0	0.12				
H	1993 070659	Columbia (URB)	Umatilla R	04/07/95	24,374	115,271	55.25	0	0	0	0	0	0	0	0	0	0	0	0	27	0	0	2	0	0.12				
H	1993 070658	Columbia (URB)	Umatilla R	04/07/95	24,865	111,817	58.08	7	0	0	0	0	0	0	0	0	0	0	0	47	5	2	2	0	0.25				
H	1994 071037	Columbia (URB)	Umatilla R	04/05/96	27,397	204,022	64.70	2	0	0	0	0	0	0	0	0	0	0	0	57	2	15	0	0	0.28				
H	1994 071038	Columbia (URB)	Umatilla R	04/18/96	28,521	217,294	64.70	0	0	0	0	0	0	0	0	0	0	0	0	22	1	12	3	0	0.13				

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.			
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries								
brood,	tagcode Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+	
FALL CHINOOK SALMON (Continued)																									
CEDC Fisheries (Tules):																									
H	1986 074251	Big Creek	Columbia R	05/19/87	46,724	49,738	7.88	0	0	8	0	11	9	7	0	0	12	0	0	0	21	10	1	0	0.17
H	1986 074253	Big Creek	Columbia R	05/20/87	41,869	42,903	9.98	0	0	38	3	0	21	0	3	11	15	0	0	7	25	27	0	0	0.36
H	1986 074248	Big Creek	Klaskanine R, SF	05/25/87	47,382	1,249,820	7.88	0	3	20	0	0	0	0	2	0	0	0	0	4	6	6	0	0	0.09
H	1987 074006	Big Creek	Klask & Youngs R	05/16/88	44,529	2,774,357	7.48	0	0	6	0	2	0	0	0	3	0	0	0	0	5	3	0	0	0.04
H	1987 074008	Big Creek	Klask & Youngs R	05/19/88	47,876	52,040	6.27	0	0	23	0	0	4	0	0	0	0	0	0	0	10	14	0	0	0.11
H	1987 074007	Big Creek	Klask & Youngs R	05/19/88	47,255	253,053	7.79	0	0	0	7	0	7	0	0	0	0	0	0	0	10	4	0	0	0.06
CEDC Fisheries (URB):																									
H	1994 071235	Columbia (URB)	Youngs R	07/18/95	50,608	199,088	19.45	3	3	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0.02
H	1995 091711	Columbia (URB)	Tongue Pt	07/15/96	46,186	97,866	16.79	13	2	0	0	0	0	0	0	0	0	0	0	0	2	120	2	0	0.30
CEDC Fisheries (Rogue):																									
H	1986 074246	Rogue R	Klaskanine R SFk	07/13/87	2,760	20,000	22.68	0	0	0	0	0	0	0	0	0	6	0	0	0	3	1	0	0	0.36
H	1987 074245	Rogue R	Klaskanine R SFk	08/05/88	26,481	79,770	29.45	0	0	12	0	0	53	5	7	103	257	13	39	23	86	154	28	0	3.02
H	1989 074639	Rogue R	Youngs R	08/01/90	9,896	25,606	13.83	0	0	6	0	0	2	0	0	51	0	0	0	2	37	30	4	0	1.33
H	1989 074640	Rogue R	Youngs R	08/01/90	9,884	25,568	13.83	0	0	0	0	0	2	0	0	50	0	0	0	11	24	42	0	0	1.35
H	1989 074641	Rogue R	Youngs R	08/01/90	10,404	25,529	13.83	0	0	0	0	0	9	1	4	31	9	0	0	5	11	27	1	0	0.94
H	1989 074642	Rogue R	Youngs R	08/01/90	9,699	25,095	13.83	0	0	0	0	0	1	0	54	3	0	8	12	28	40	0	0	0	1.55
H	1989 074643	Rogue R	Youngs R	08/01/90	10,453	25,913	13.83	0	0	7	0	0	6	9	3	67	0	0	5	7	37	37	0	0	1.70
H	1991 071427	Rogue R	Youngs R	08/03/92	25,467	56,467	33.10	0	0	0	0	0	0	0	0	0	0	0	0	10	12	15	0	0	0.15
H	1993 070757	Rogue R	Youngs R	07/20/94	25,351	337,915	22.43	0	0	0	0	0	3	0	0	48	4	3	26	38	77	94	5	0	1.18
H	1994 070742	Rogue R	Youngs R	06/27/95	49,826	107,892	24.87	0	0	0	0	0	2	0	0	7	6	0	8	6	62	37	5	0	0.27
H	1994 071421	Rogue R	Youngs R	07/17/95	19,514	707,127	11.45	0	0	0	0	0	0	0	0	0	0	0	0	2	3	2	0	0	0.04
H	1994 070931	Rogue R	Youngs R	07/18/95	42,854	115,702	32.82	0	0	0	0	0	2	0	0	18	10	6	0	3	37	42	1	0	0.28
H	1994 070928	Rogue R	Youngs R	07/18/95	49,657	77,100	33.30	0	0	0	0	0	0	0	0	26	2	0	5	9	27	35	3	0	0.22
H	1994 070930	Rogue R	Youngs R	07/18/95	44,123	127,936	38.37	0	0	0	0	0	0	0	2	51	10	3	5	15	97	57	1	0	0.55
H	1994 070929	Rogue R	Youngs R	07/18/95	43,518	116,030	41.54	4	4	0	0	0	0	0	0	32	8	0	3	10	89	57	11	0	0.51
H	1995 071341	Rogue R	Youngs R	07/16/96	45,148	154,593	31.48	0	0	0	0	0	3	0	0	0	4	0	6	5	43	68	6	0	0.30
H	1995 071342	Rogue R	Youngs R	07/16/96	57,523	64,679	34.86	0	0	0	0	0	7	0	4	21	15	0	3	8	131	184	8	0	0.67
H	1995 071354	Rogue R	Youngs R	07/17/96	26,934	329,976	14.25	0	0	0	0	0	0	0	0	7	0	0	1	0	10	13	0	0	0.12
CEDC Fisheries - Blind Slough																									
H	1995 071351	Rogue R	Blind Slough	07/15/96	27,231	27,380	22.77	0	0	0	0	0	0	0	0	0	14	0	3	2	47	141	6	0	0.78
CEDC Fisheries - Tongue Point																									
H	1995 071350	Rogue R	Tongue Point	07/15/96	26,354	26,792	20.60	0	0	0	0	0	4	0	3	2	0	0	3	34	22	2	0	0	0.27



Appendix Table A. Continued.

STOCK GROUP,		Ocean Catch																														
stock, (source H, N, M),		Release	Number Released		Size												Freshwater Recoveries					%										
brood, tagcode	Hatchery	Date	Ad+CWT	Total	(gm)	AK	NCBC	WCVI	GST	PS	WA	Oregon Areas					CA	2	3	4	5	6+	Surv.									
		Release Site	FALL CHINOOK SALMON (Continued)																													
			1&2	3	4	5	6&7																									
Irrigon:																																
M	1986	073912	Washington	URB	Umatilla	R	05/08/87	40,793	497,572	7.48	31	47	29	0	0	7	0	7	0	0	0	0	0	0	0	0	7	58	83	15	0	0.70
M	1986	073913	Washington	URB	Umatilla	R	05/08/87	41,096	501,266	7.48	43	56	44	2	0	5	0	0	0	0	2	0	0	0	0	0	6	59	126	9	0	0.86
M	1986	073914	Washington	URB	Umatilla	R	05/08/87	39,187	477,992	7.48	43	53	43	3	0	7	5	0	0	2	0	5	13	46	93	12	0	0.83				
H	1986	073915	Washington	URB	Umatilla	R	07/14/87	643	670	22.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1986	073916	Washington	URB	Umatilla	R	07/14/87	645	672	22.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1986	074035	Washington	URB	Umatilla	R	07/14/87	632	658	22.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0.79	
M	1987	075007	Washington	URB	Umatilla	R	05/06/88	198,285	1,886,757	6.64	27	35	11	3	0	2	0	0	0	0	0	0	0	0	14	15	33	5	0	0.07		
M	1988	074646	Washington	URB	Umatilla	R	05/16/89	52,228	797,904	6.05	15	4	9	0	0	0	0	0	0	0	0	0	0	0	3	12	17	2	0	0.12		
M	1988	074647	Washington	URB	Umatilla	R	05/16/89	49,771	797,903	6.05	7	17	5	0	0	0	0	0	0	0	0	0	0	4	6	13	11	0	0.13			
M	1988	074648	Washington	URB	Umatilla	R	05/16/89	52,244	797,903	6.05	8	9	11	0	0	0	0	0	0	0	0	0	0	1	13	7	5	0	0.10			
H	1988	074758	Washington	URB	Umatilla	R	10/18/89	26,790	27,071	41.23	0	4	6	0	0	0	0	0	0	0	0	0	0	0	0	1	9	5	1	0.10		
H	1988	074760	Washington	URB	Umatilla	R	10/18/89	24,285	25,428	41.23	3	7	3	0	0	2	0	0	0	0	0	0	0	0	0	1	6	1	0	0.09		
H	1988	074763	Washington	URB	Umatilla	R	10/18/89	25,350	25,633	41.23	1	6	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0	0.06		
H	1988	074753	Washington	URB	Umatilla	R	10/18/89	26,358	26,770	41.61	3	6	0	0	0	0	0	0	2	2	0	0	0	0	4	7	6	1	0.12			
H	1988	074754	Washington	URB	Umatilla	R	10/18/89	25,028	26,617	41.61	0	4	0	0	0	2	0	0	0	0	0	0	0	6	6	3	5	0	0.10			
H	1988	074757	Washington	URB	Umatilla	R	10/18/89	25,438	25,438	41.61	0	0	0	4	0	0	0	0	0	0	0	0	0	2	4	8	1	0	0.07			
M	1989	075403	Columbia	(URB)	Umatilla	R	05/23/90	52,612	131,101	4.77	8	25	12	0	0	0	0	0	0	0	0	0	0	8	6	43	14	0	0.22			
M	1989	075404	Columbia	(URB)	Umatilla	R	05/23/90	53,160	131,100	4.77	8	14	19	0	0	4	0	0	0	0	0	0	0	9	6	38	11	1	0.21			
M	1989	075405	Columbia	(URB)	Umatilla	R	05/23/90	53,248	131,099	4.77	9	16	9	0	4	0	0	0	0	0	0	0	0	8	6	12	5	0	0.13			
H	1989	075325	Columbia	(URB)	Umatilla	R	10/16/90	23,396	25,311	49.30	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0.03			
H	1989	075326	Columbia	(URB)	Umatilla	R	10/16/90	21,929	23,724	49.30	6	5	0	0	0	0	0	0	0	0	0	0	0	0	1	11	1	0	0.11			
H	1989	075327	Columbia	(URB)	Umatilla	R	10/16/90	21,101	22,828	49.30	0	0	0	0	0	2	0	0	0	0	0	0	0	2	3	5	1	0	0.06			
H	1989	075322	Columbia	(URB)	Umatilla	R	10/16/90	23,413	25,472	51.54	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	3	2	0	0.04			
H	1989	075323	Columbia	(URB)	Umatilla	R	10/16/90	23,617	25,694	51.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00			
H	1989	075324	Columbia	(URB)	Umatilla	R	10/16/90	23,420	25,480	51.54	0	4	9	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0.07			
H	1990	075225	Columbia	(URB)	Umatilla	R	05/08/91	52,252	1,343,311	5.53	17	0	0	0	0	0	0	0	0	0	0	0	0	1	2	65	10	0	0.18			
H	1990	075226	Columbia	(URB)	Umatilla	R	05/08/91	51,728	1,343,042	5.53	13	3	13	0	0	0	0	0	0	0	0	0	0	0	6	51	10	0	0.19			
H	1990	075450	Columbia	(URB)	Umatilla	R	05/08/91	51,814	52,326	5.53	12	29	13	0	0	0	0	0	0	0	0	0	0	1	10	37	25	0	0.25			
H	1990	075451	Columbia	(URB)	Umatilla	R	05/08/91	52,444	52,706	5.53	22	11	36	0	0	4	0	0	0	0	0	0	0	5	9	70	7	0	0.31			
H	1990	070016	Columbia	(URB)	Umatilla	R	05/10/91	48,301	99,225	6.21	29	7	14	0	0	3	0	0	0	0	0	0	0	1	12	70	10	1	0.30			
H	1990	075328	Columbia	(URB)	Umatilla	R	05/10/91	48,266	100,642	62.13	27	8	12	0	0	0	0	3	0	0	0	0	0	3	12	93	7	0	0.34			
H	1990	075449	Columbia	(URB)	Umatilla	R	05/10/91	48,481	99,962	62.13	12	16	10	0	0	0	0	0	0	0	0	0	0	7	3	42	21	1	0.23			
H	1990	075560	Columbia	(URB)	Umatilla	R	05/13/91	25,720	25,862	5.27	17	8	3	0	0	0	0	0	0	0	0	0	0	6	2	11	16	0	0.24			
H	1990	075561	Columbia	(URB)	Umatilla	R	05/13/91	25,425	25,708	5.27	2	4	9	0	0	0	0	0	0	0	0	0	0	0	7	9	13	0	0.17			
H	1990	075562	Columbia	(URB)	Umatilla	R	05/13/91	22,309	23,295	5.27	7	8	0	0	0	2	0	0	0	0	0	0	0	0	7	12	2	0	0.17			
H	1990	075563	Columbia	(URB)	Umatilla	R	05/13/91	26,173	26,481	5.63	4	12	0	0	0	0	0	0	0	0	0	0	0	0	5	12	4	0	0.14			
H	1990	075601	Columbia	(URB)	Umatilla	R	05/13/91	24,762	26,585	5.63	10	7	13	0	0	0	0	0	0	0	0	0	0	1	9	49	8	0	0.39			
H	1990	075602	Columbia	(URB)	Umatilla	R	05/13/91	25,476	26,606	5.63	4	17	3	0	0	0	0	0	4	0	0	0	0	2	8	13	6	0	0.22			

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			%			
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries									
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+	Surv.	
FALL CHINOOK SALMON (Continued)																										
Klaskanine:																										
H	1986	074452	Big Creek	Klaskanine R NFk	04/07/87	50,939	410,949	3.71	2	0	40	0	0	20	0	0	2	0	0	4	0	29	41	0	0	0.27
H	1986	074455	Big Creek	Klaskanine R NFk	04/07/87	50,940	410,965	3.71	0	0	24	0	6	14	7	5	0	4	2	3	0	20	8	0	0	0.19
H	1986	074456	Big Creek	Klaskanine R NFk	05/05/87	46,389	1,469,343	5.19	0	3	17	3	0	11	0	0	0	0	0	0	0	14	12	0	0	0.13
H	1986	074459	Big Creek	Klaskanine R NFk	05/05/87	46,389	1,469,343	5.19	0	0	28	0	0	5	0	0	11	0	0	0	7	1	6	0	0	0.13
H	1987	074602	Big Creek	Klaskanine R NFk	04/14/88	49,227	419,707	2.28	0	0	5	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0.02
H	1987	074603	Big Creek	Klaskanine R NFk	04/14/88	50,040	426,640	2.28	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.00
H	1987	074604	Big Creek	Klaskanine R NFk	05/10/88	52,162	1,454,643	4.61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0.01
H	1987	074605	Big Creek	Klaskanine R NFk	05/10/88	52,117	1,453,366	4.61	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	0	0.01
H	1988	075023	Big Creek	Klaskanine R NFk	04/21/89	52,609	439,184	3.00	0	1	14	4	0	13	0	0	0	0	0	0	0	2	1	0	0	0.07
H	1988	075024	Big Creek	Klaskanine R NFk	04/21/89	51,522	439,183	3.00	0	0	6	0	9	8	0	4	0	0	0	0	0	3	9	0	0	0.08
H	1988	075025	Big Creek	Klaskanine R NFk	05/05/89	52,403	1,576,340	4.21	0	0	14	0	0	0	0	1	0	0	0	0	0	11	2	0	0	0.05
H	1988	075027	Big Creek	Klaskanine R NFk	05/05/89	52,653	1,576,340	4.21	0	0	45	0	0	12	0	0	4	0	0	0	0	8	5	0	0	0.14
Stayton Pond:																										
H	1986	074050	Tanner Cr	Willamette R	05/07/87	40,080	1,174,019	7.48	0	0	6	0	0	8	0	0	0	0	0	0	0	9	9	0	0	0.08
H	1986	074051	Tanner Cr	Willamette R	05/07/87	39,148	1,146,734	7.48	0	0	9	0	0	10	0	0	19	0	0	0	0	6	13	0	0	0.15
H	1986	074052	Tanner Cr	Willamette R	05/07/87	39,263	1,150,086	7.48	0	0	3	0	4	6	0	0	0	0	0	0	0	8	11	0	0	0.08
H	1986	074053	Tanner Cr	Willamette R	05/07/87	39,869	1,167,859	7.48	0	0	0	4	0	13	2	0	0	0	0	2	0	6	6	0	0	0.08
H	1986	074054	Tanner Cr	Willamette R	05/07/87	38,584	1,130,224	7.48	0	0	0	0	0	5	0	0	8	0	0	0	0	0	11	0	0	0.06
H	1987	074526	Tanner Cr	Willamette R	05/07/88	39,715	1,039,050	8.22	0	0	14	0	0	8	0	0	0	0	0	0	3	23	3	0	0	0.13
H	1987	074527	Tanner Cr	Willamette R	05/07/88	37,631	984,516	8.22	0	0	15	0	0	7	0	0	2	0	0	0	0	24	15	0	0	0.17
H	1987	074528	Tanner Cr	Willamette R	05/07/88	39,003	1,020,416	8.22	0	0	12	0	0	14	2	0	0	0	0	0	0	11	6	0	0	0.12
H	1987	074529	Tanner Cr	Willamette R	05/07/88	38,224	1,000,052	8.22	0	0	15	0	0	3	0	4	2	5	0	0	3	11	12	0	0	0.14
H	1987	074530	Tanner Cr	Willamette R	05/07/88	38,767	1,014,243	8.22	0	0	14	2	0	7	0	0	0	0	0	0	0	11	0	0	0	0.09
H	1988	075012	Tanner Cr	Willamette R	05/03/89	35,973	951,526	7.21	0	1	8	0	0	6	0	0	1	0	3	0	3	21	5	0	0	0.13
H	1988	075015	Tanner Cr	Willamette R	05/03/89	34,933	924,040	7.21	0	0	15	0	0	10	0	0	0	0	0	0	3	24	6	0	0	0.17
H	1988	075017	Tanner Cr	Willamette R	05/03/89	34,259	906,211	7.21	0	1	2	0	0	8	0	0	0	4	0	0	8	12	3	0	0	0.11
H	1988	075018	Tanner Cr	Willamette R	05/03/89	34,351	908,626	7.21	0	0	19	4	0	9	0	0	7	0	0	0	6	31	9	0	0	0.25
H	1988	075020	Tanner Cr	Willamette R	05/03/89	34,203	904,729	7.21	0	0	3	3	5	7	0	0	2	0	0	0	3	21	8	0	0	0.15
H	1989	075218	Tanner Cr	Willamette R	05/11/90	46,422	1,160,558	10.40	0	0	45	4	2	57	0	2	14	0	0	0	30	85	25	1	0	0.57
H	1989	075219	Tanner Cr	Willamette R	05/11/90	47,029	1,175,728	10.40	0	0	34	0	0	66	0	7	14	2	0	0	29	85	32	0	0	0.57
H	1989	075220	Tanner Cr	Willamette R	05/11/90	46,908	1,172,703	10.40	0	9	39	12	4	120	4	5	7	3	0	0	27	75	22	0	0	0.70
H	1989	075221	Tanner Cr	Willamette R	05/11/90	46,874	1,171,876	10.40	0	0	64	7	16	69	0	0	16	7	0	0	40	110	29	0	0	0.76
H	1989	075222	Tanner Cr	Willamette R	05/11/90	47,551	1,188,787	10.40	0	0	98	4	8	88	7	5	15	0	0	0	36	95	23	0	0	0.80
H	1990	075227	Tanner Cr	Willamette R	05/09/91	39,127	1,897,990	8.11	0	0	27	0	5	0	0	4	0	0	0	0	6	21	9	0	0	0.18
H	1990	075228	Tanner Cr	Willamette R	05/09/91	37,988	1,842,767	8.11	0	0	19	0	0	9	0	0	0	0	0	0	10	23	0	0	0	0.16
H	1990	075229	Tanner Cr	Willamette R	05/09/91	40,149	1,947,585	8.11	0	0	18	0	0	7	4	0	6	0	0	0	3	17	0	0	0	0.14

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			%	
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries					Surv.	
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+
FALL CHINOOK SALMON (Continued)																								
Stayton Pond (Continued):																								
H	1990 075230	Tanner Cr	Willamette R	05/09/91	39,540	1,918,027	8.11	0	0	3	0	13	4	2	0	0	0	0	8	22	1	0	0	0.13
H	1990 075231	Tanner Cr	Willamette R	05/09/91	39,383	1,910,410	8.11	0	0	9	0	0	17	0	0	3	0	0	5	28	2	0	0	0.16
H	1991 071601	Tanner Cr	Willamette R	05/02/92	35,861	2,057,967	8.22	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.01
H	1991 071602	Tanner Cr	Willamette R	05/02/92	40,237	2,032,995	8.22	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
H	1991 071603	Tanner Cr	Willamette R	05/02/92	40,142	1,991,864	8.22	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.00
H	1991 071604	Tanner Cr	Willamette R	05/02/92	40,903	2,013,522	8.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 075905	Tanner Cr	Willamette R	05/02/92	39,286	1,995,947	8.22	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	0	0.01
H	1992 070221	Tanner Cr	Willamette R	05/05/93	41,255	1,007,956	8.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070222	Tanner Cr	Willamette R	05/05/93	42,110	1,026,744	8.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070223	Tanner Cr	Willamette R	05/05/93	40,543	989,309	8.57	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0.01
H	1992 070224	Tanner Cr	Willamette R	05/05/93	41,091	1,001,111	8.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076321	Tanner Cr	Willamette R	05/05/93	41,307	1,006,420	8.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.00
H	1993 070516	Tanner Cr	Willamette R	05/12/94	39,468	1,186,737	8.83	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0.01
H	1993 070517	Tanner Cr	Willamette R	05/12/94	38,822	1,166,435	8.83	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0.02
H	1993 070518	Tanner Cr	Willamette R	05/12/94	39,011	1,171,734	8.83	0	0	0	0	0	0	0	0	0	0	0	2	1	2	0	0	0.01
H	1993 070519	Tanner Cr	Willamette R	05/12/94	38,794	1,164,984	8.83	0	0	0	0	0	0	0	0	0	0	0	1	5	3	0	0	0.03
H	1993 070520	Tanner Cr	Willamette R	05/12/94	38,424	1,154,229	8.83	0	0	4	0	0	0	0	0	0	0	0	0	3	3	0	0	0.03
H	1994 070852	Tanner Cr	Willamette R	05/04/95	206,717	10,667,979	7.43	0	0	23	0	0	15	0	0	4	2	0	5	56	24	0	0	0.06
H	1992 075657	Tanner Cr	Tanner Cr	04/26/93	55,442	56,442	6.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1993 070235	Tanner Cr	Tanner Cr	05/02/94	53,383	55,057	7.78	0	0	0	0	0	0	0	0	0	0	0	1	20	2	0	0	0.04
H	1994 075812	Tanner Cr	Tanner Cr	04/24/95	52,482	52,935	6.44	0	0	13	0	0	0	0	0	4	0	0	1	40	10	0	0	0.13
H	1992 075658	Tanner Cr	Santiam R & N Fk	05/05/93	51,429	1,254,750	6.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1993 070234	Tanner Cr	Santiam R & N Fk	05/12/94	46,981	1,402,112	8.13	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
H	1994 070432	Tanner Cr	Santiam R & N Fk	05/04/95	53,689	54,086	6.73	0	4	12	0	0	0	0	0	2	0	0	0	14	4	0	0	0.07
Umatilla:																								
H	1991 071434	Columbia (URB)	Umatilla R	05/18/92	31,224	306,802	6.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071438	Columbia (URB)	Umatilla R	05/18/92	30,924	301,831	7.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071436	Columbia (URB)	Umatilla R	05/18/92	30,365	302,555	7.33	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00
H	1991 071433	Columbia (URB)	Umatilla R	05/18/92	29,066	303,878	7.43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071435	Columbia (URB)	Umatilla R	05/18/92	30,326	297,331	7.45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071437	Columbia (URB)	Umatilla R	05/18/92	30,508	223,830	8.22	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
H	1991 071430	Columbia (URB)	Umatilla R	05/19/92	32,287	281,350	6.97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.01
H	1991 071432	Columbia (URB)	Umatilla R	05/19/92	29,425	191,257	7.78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071431	Columbia (URB)	Umatilla R	05/19/92	28,951	182,931	8.07	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071429	Columbia (URB)	Umatilla R	05/20/92	31,892	286,578	6.42	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
H	1992 076334	Columbia (URB)	Umatilla R	05/24/93	29,958	282,175	6.67	3	0	0	0	0	0	0	0	0	0	0	2	3	1	1	0	0.03
H	1992 076331	Columbia (URB)	Umatilla R	05/24/93	29,537	282,125	6.77	5	0	0	0	0	0	0	0	0	0	0	2	4	7	1	0	0.06



Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.		
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries							
brood,	tagcode Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+
FALL CHINOOK SALMON (Continued)																								
Umatilla (Continued):																								
H	1995 071328	Washington URB	Umatilla R	05/30/96	30,455	181,709	7.51	6	0	0	0	0	0	0	0	0	0	2	0	12	4	0	0.08	
H	1995 071322	Washington URB	Umatilla R	05/30/96	29,646	266,913	7.92	6	0	0	0	0	1	0	0	0	0	0	3	7	11	2	0	0.10
H	1995 071326	Washington URB	Umatilla R	05/30/96	30,238	181,291	8.02	19	0	0	0	0	0	0	0	0	0	0	11	9	3	0	0.14	
H	1995 071157	Washington URB	Umatilla R	05/31/96	29,852	393,339	6.22	0	0	0	0	0	0	0	0	0	0	2	5	6	1	0	0.05	
H	1995 071327	Washington URB	Umatilla R	05/31/96	28,476	460,259	6.52	3	0	0	0	0	0	0	0	0	0	2	4	3	1	0	0.05	
H	1995 071358	Washington URB	Umatilla R	03/25/97	25,983	51,112	55.31	15	2	0	0	0	0	0	0	0	0	18	13	29	52	0	0.50	
H	1995 091807	Washington URB	Umatilla R	03/25/97	25,258	51,066	55.31	31	12	0	0	0	4	0	0	0	0	22	8	39	55	0	0.68	
H	1995 071359	Washington URB	Umatilla R	03/25/97	25,232	50,865	56.00	19	5	3	0	0	10	0	0	0	0	29	6	52	82	0	0.82	
H	1995 091729	Washington URB	Umatilla R	03/25/97	25,250	53,993	59.68	34	5	1	0	0	3	0	0	0	0	13	10	45	48	0	0.63	
H	1995 091748	Washington URB	Umatilla R	03/25/97	25,260	51,917	59.68	43	2	2	0	0	5	0	0	0	3	0	24	21	75	102	0	1.12
SPRING CHINOOK SALMON																								
Bonneville:																								
H	1986 074325	Carson (WA)	Meacham Cr	04/20/88	26,640	35,946	44.90	0	0	0	0	0	0	0	0	0	0	3	8	175	65	0	0.94	
H	1986 074326	Carson (WA)	Meacham Cr	04/20/88	25,863	35,148	44.90	0	0	0	0	0	0	0	0	0	0	0	4	173	66	0	0.94	
H	1986 074327	Carson (WA)	Meacham Cr	04/20/88	25,853	35,137	44.90	0	0	0	0	0	0	0	0	0	0	0	4	166	73	0	0.94	
H	1986 074328	Carson (WA)	Umatilla R	04/20/88	26,319	34,187	52.13	0	0	0	0	0	0	0	0	0	0	1	6	124	40	0	0.65	
H	1986 074329	Carson (WA)	Umatilla R	04/20/88	25,722	33,573	52.13	0	0	0	0	0	0	0	0	0	0	2	4	80	37	0	0.48	
H	1986 074330	Carson (WA)	Umatilla R	04/22/88	26,252	34,118	52.13	0	0	0	0	0	0	0	0	0	0	0	0	168	72	0	0.91	
H	1987 074427	Lookingglass Cr	Umatilla R	11/08/88	25,987	26,109	40.86	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0.06	
H	1987 074429	Lookingglass Cr	Umatilla R	11/08/88	24,070	24,183	40.86	0	0	0	0	0	0	0	0	0	0	0	2	21	4	0	0.11	
H	1987 074430	Lookingglass Cr	Umatilla R	11/08/88	25,356	25,475	40.86	0	0	0	0	0	0	0	0	0	0	0	0	21	1	0	0.09	
H	1987 074420	Lookingglass Cr	Umatilla R	11/10/88	410	416	21.19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1987 074423	Lookingglass Cr	Umatilla R	11/10/88	393	399	21.19	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.25	
H	1987 074424	Lookingglass Cr	Umatilla R	11/10/88	376	381	21.19	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.27	
H	1987 074439	Lookingglass Cr	Umatilla R	03/28/89	27,585	28,153	42.00	0	0	0	0	0	0	0	0	0	0	1	0	76	12	0	0.32	
H	1987 074440	Lookingglass Cr	Umatilla R	03/28/89	27,550	28,116	42.00	0	0	0	0	2	0	0	0	0	0	0	3	84	3	0	0.33	
H	1987 074443	Lookingglass Cr	Umatilla R	03/28/89	24,165	24,663	42.00	0	0	0	0	0	0	0	0	0	0	2	2	74	6	0	0.35	
H	1987 074433	Lookingglass Cr	Umatilla R	05/23/89	25,427	26,135	43.19	0	0	0	0	0	0	0	0	0	0	0	5	85	0	0	0.35	
H	1987 074434	Lookingglass Cr	Umatilla R	05/23/89	27,004	27,756	43.19	0	0	0	0	0	0	0	0	0	0	0	2	57	7	0	0.24	
H	1987 074436	Lookingglass Cr	Umatilla R	05/23/89	25,386	26,093	43.19	0	0	0	0	0	0	0	0	0	0	0	3	54	7	0	0.25	
H	1988 075063	Lookingglass Cr	Umatilla R	10/13/89	24,801	24,968	37.79	0	0	0	0	0	0	0	0	0	0	1	2	9	4	0	0.06	
H	1988 075101	Lookingglass Cr	Umatilla R	10/13/89	28,109	28,299	37.79	0	0	0	0	0	0	0	0	0	0	1	0	11	12	0	0.09	
H	1988 075102	Lookingglass Cr	Umatilla R	10/13/89	27,299	27,483	37.79	0	0	0	0	0	0	0	0	0	0	1	2	10	7	0	0.07	
H	1988 075103	Lookingglass Cr	Umatilla R	10/13/89	27,137	27,287	37.79	0	0	0	0	0	0	0	0	0	0	0	2	6	6	0	0.05	
H	1988 075104	Lookingglass Cr	Umatilla R	10/13/89	28,560	28,718	37.79	0	0	0	0	0	0	0	0	0	0	0	5	18	6	0	0.10	
H	1988 075105	Lookingglass Cr	Umatilla R	10/13/89	27,695	27,848	37.79	0	0	0	0	0	0	0	0	0	0	0	1	4	4	0	0.03	
H	1988 075106	Lookingglass Cr	Umatilla R	03/22/90	26,638	38,224	50.39	0	0	0	0	0	0	0	0	0	0	3	2	66	35	0	0.40	

Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																			% Surv.		
stock, (source H, N, M),		Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries								
brood, tagcode	Hatchery		Release Site	Ad+CWT		Total	AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+
SPRING CHINOOK SALMON (Continued)																								
Bonneville (Continued):																								
H	1988 075107	Lookingglass Cr	Umatilla R	03/22/90	26,160	37,538	50.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.52	
H	1988 075108	Lookingglass Cr	Umatilla R	03/22/90	26,888	38,583	50.39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.37	
H	1988 075109	Lookingglass Cr	Umatilla R	03/23/90	25,611	39,012	47.24	0	0	0	0	0	0	0	0	0	0	3	2	72	64	0	0.55	
H	1988 075110	Lookingglass Cr	Umatilla R	03/23/90	26,307	40,072	47.24	0	0	0	0	0	1	0	0	0	0	0	0	6	85	67	0	0.60
H	1988 075111	Lookingglass Cr	Umatilla R	03/23/90	25,172	38,343	47.24	0	0	0	0	0	0	0	0	0	0	2	3	52	48	0	0.42	
H	1989 074508	Lookingglass Cr	Umatilla R	10/26/90	25,876	26,050	33.84	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0.01	
H	1989 074509	Lookingglass Cr	Umatilla R	10/26/90	26,104	26,280	33.84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1989 074510	Lookingglass Cr	Umatilla R	10/26/90	25,497	25,669	33.84	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00	
H	1989 074505	Lookingglass Cr	Umatilla R	10/26/90	26,670	26,757	39.44	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0.01	
H	1989 074506	Lookingglass Cr	Umatilla R	10/26/90	26,717	26,804	39.44	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00	
H	1989 074507	Lookingglass Cr	Umatilla R	10/26/90	26,788	26,876	39.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1989 075114	Lookingglass Cr	Umatilla R	03/26/91	25,947	33,473	44.90	0	0	0	0	0	0	0	0	0	0	0	0	43	2	0	0.17	
H	1989 075115	Lookingglass Cr	Umatilla R	03/26/91	25,921	33,440	44.90	0	0	0	0	0	0	0	0	0	0	1	2	32	1	0	0.14	
H	1989 075116	Lookingglass Cr	Umatilla R	03/26/91	26,039	33,592	44.90	0	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0.18	
H	1989 075442	Lookingglass Cr	Umatilla R	03/27/91	24,441	32,032	38.43	0	0	0	0	0	0	0	0	0	0	0	0	25	1	0	0.11	
H	1989 075440	Lookingglass Cr	Umatilla R	03/28/91	24,365	31,932	38.43	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0.09	
H	1989 075441	Lookingglass Cr	Umatilla R	03/28/91	24,559	32,186	38.43	3	0	0	0	0	0	0	0	0	0	0	0	24	5	0	0.13	
H	1990 075829	Lookingglass Cr	Umatilla R	11/08/91	25,499	26,020	26.99	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0.01	
H	1990 075830	Lookingglass Cr	Umatilla R	11/08/91	25,382	25,899	26.99	0	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0.02	
H	1990 075831	Lookingglass Cr	Umatilla R	11/08/91	26,029	26,561	26.99	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0.01	
H	1990 075826	Lookingglass Cr	Umatilla R	11/08/91	26,769	27,039	27.49	0	0	0	0	0	0	0	0	0	0	0	3	2	0	0	0.02	
H	1990 075827	Lookingglass Cr	Umatilla R	11/08/91	26,737	27,007	27.49	0	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0.02	
H	1990 075828	Lookingglass Cr	Umatilla R	11/08/91	26,827	27,097	27.49	0	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0.02	
H	1990 075835	Lookingglass Cr	Umatilla R	04/21/92	26,570	36,351	49.30	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0.01	
H	1990 075836	Lookingglass Cr	Umatilla R	04/21/92	26,426	36,154	49.30	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0.01	
H	1990 075837	Lookingglass Cr	Umatilla R	04/21/92	26,750	36,596	49.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1990 075832	Lookingglass Cr	Umatilla R	04/21/92	25,503	32,994	53.35	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00	
H	1990 075833	Lookingglass Cr	Umatilla R	04/21/92	25,472	32,953	53.35	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0.03	
H	1990 075834	Lookingglass Cr	Umatilla R	04/21/92	25,493	32,982	53.35	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0.01	
H	1991 076047	Carson (WA)	Umatilla R	11/03/92	17,269	17,667	44.91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1991 076046	Carson (WA)	Umatilla R	11/03/92	24,221	24,715	45.36	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00	
H	1991 076045	Carson (WA)	Umatilla R	11/03/92	24,638	24,638	45.82	0	0	0	0	0	0	0	0	0	0	0	1	1	3	0	0.02	
H	1991 076044	Carson (WA)	Umatilla R	11/04/92	15,423	15,730	34.62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1991 076042	Carson (WA)	Umatilla R	11/04/92	25,104	25,104	34.89	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00	
H	1991 076043	Carson (WA)	Umatilla R	11/04/92	24,992	25,075	34.89	0	0	0	0	0	0	0	0	0	0	0	1	3	3	0	0.03	
H	1991 071456	Carson (WA)	Umatilla R	03/22/93	20,022	46,112	31.72	0	0	0	0	0	0	0	0	0	0	0	0	3	6	0	0.04	
H	1991 071455	Carson (WA)	Umatilla R	03/23/93	19,951	45,430	30.65	0	0	0	0	0	0	0	0	0	0	0	1	3	6	0	0.05	
H	1992 075944	Carson (WA)	Umatilla R	03/25/94	20,109	103,980	36.28	0	0	0	0	0	0	0	0	0	0	0	2	95	7	0	0.52	

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			% Surv.	
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries							
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+
SPRING CHINOOK SALMON (Continued)																								
Bonneville (Continued):																								
H	1992 075945	Carson (WA)	Umatilla R	03/25/94	20,219	99,676	37.17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.44		
H	1992 070250	Carson (WA)	Umatilla R	03/25/94	26,716	99,616	38.76	0	0	0	0	0	0	0	0	0	0	0	0	5	117	7	0.48	
H	1992 070251	Carson (WA)	Umatilla R	03/25/94	26,305	101,830	38.76	0	0	0	0	0	0	0	0	0	0	1	6	121	5	0.51		
H	1986 074257	Carson (WA)	Hood R, W Fk	03/14/88	50,744	149,939	40.13	0	0	0	0	0	0	0	0	0	0	0	0	0	92	71	0.33	
H	1987 074258	Lookingglass Cr	Hood R, W Fk	03/09/89	52,248	134,317	42.38	0	0	0	0	0	0	0	0	0	0	0	0	0	28	7	0.07	
H	1988 075223	Lookingglass Cr	Hood R, W Fk	03/14/90	52,891	193,193	44.90	0	0	0	0	0	0	0	0	0	0	0	0	0	78	30	0.20	
H	1989 075530	Lookingglass Cr	Hood R, W Fk	03/25/91	52,068	125,327	44.90	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0.03	
H	1990 075659	Lookingglass Cr	Hood R, W Fk	04/02/92	52,732	163,295	45.40	0	0	0	0	0	0	0	0	0	0	0	0	0	13	4	0.03	
N	1991 073335	Deschutes R	Hood R, W Fk	04/01/93	39,739	40,317	40.14	0	0	0	0	0	0	0	0	0	0	1	0	9	0	0.03		
N	1993 070549	Deschutes R	Hood R, W Fk	04/05/95	42,861	170,004	33.82	0	0	0	0	0	0	0	0	0	0	1	0	17	0	0.04		
CEDC Fisheries - Blind Slough:																								
H	1994 071237	S Santiam R	Blind Slough	02/29/96	52,369	199,389	45.77	2	0	0	0	0	0	0	0	0	0	0	0	1	21	37	0.12	
H	1995 091716	M Willamette R	Blind Slough	03/05/97	58,002	171,229	29.88	10	0	0	0	0	2	0	0	0	0	0	0	0	45	93	0.26	
CEDC Fisheries - South Fork Klaskanine:																								
H	1988 074460	M Willamette R	Klaskanine R, SF	06/01/89	28,050	116,079	9.45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.00	
H	1989 075232	M Willamette R	Klaskanine R, SF	06/11/90	27,491	118,674	7.56	0	0	0	0	0	1	0	0	0	0	0	0	0	1	8	0	0.04
H	1990 075603	Clackamas R	Klaskanine R, SF	06/14/91	26,472	119,627	8.95	0	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0.02
H	1991 071425	M Willamette R	Klaskanine R, SF	06/05/92	26,630	74,517	11.90	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0.02	
H	1992 076146	N Santiam R	Klaskanine R, SF	03/01/94	24,668	109,974	48.77	0	2	0	0	0	0	0	0	0	0	0	0	0	4	1	0.03	
H	1993 070351	M Willamette R	Klaskanine R, SF	02/07/95	51,829	86,978	31.48	0	0	0	0	0	0	0	0	0	0	4	1	12	19	0.07		
H	1994 071119	S Santiam R	Klaskanine R, SF	01/31/96	52,205	76,618	30.83	0	0	0	0	0	0	0	0	0	0	0	0	0	5	7	0.02	
H	1995 071337	M Willamette R	Klaskanine R, SF	03/04/97	25,149	76,821	28.35	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	0.04	
CEDC Fisheries - Tongue Point:																								
H	1994 071238	S Santiam R	Tongue Point	02/05/96	52,119	100,138	44.86	3	0	0	0	0	0	0	0	0	0	0	0	0	10	18	0.06	
H	1994 071236	S Santiam R	Tongue Point	02/29/96	48,281	142,181	41.96	7	0	0	0	0	0	0	0	0	0	0	0	0	12	17	0.07	
H	1995 091717	M Willamette R	Tongue Point	03/05/97	51,461	151,905	27.32	5	0	0	0	0	0	0	0	0	0	0	0	0	38	70	0.22	
H	1995 091718	M Willamette R	Tongue Point	04/04/97	50,309	149,889	31.07	13	0	0	0	0	0	0	0	0	0	0	0	0	21	68	0.21	
CEDC Fisheries - Youngs Bay:																								
H	1988 073563	M Willamette R	Youngs R	07/25/89	25,914	109,204	15.64	2	0	0	0	0	0	0	0	0	0	0	0	0	10	10	0.08	
H	1988 074504	M Willamette R	Youngs R	03/06/90	26,670	54,309	62.99	11	3	0	0	0	2	0	0	0	0	0	0	0	75	212	3	1.15
H	1989 075233	M Willamette R	Youngs R	07/25/90	28,688	221,790	29.07	5	0	0	0	0	0	0	0	0	0	0	0	4	16	3	0.10	
H	1990 075604	Clackamas R	Youngs R	07/20/91	26,597	210,867	30.64	0	0	0	0	0	0	0	0	0	0	0	0	0	5	6	0.04	
H	1990 075454	Clackamas R	Youngs R	02/20/92	22,592	31,667	87.21	5	6	0	0	0	8	0	0	0	0	2	1	29	129	6	0.88	
H	1991 071426	M Willamette R	Youngs R	06/23/92	26,352	301,786	26.80	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.00	

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.		
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries							
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+
SPRING CHINOOK SALMON (Continued)																								
CEDC Fisheries - Youngs Bay (Continued):																								
H	1992 070318	N Santiam R	Youngs R	03/08/94	26,418	301,361	50.96	2	3	0	0	0	0	0	0	0	0	0	1	2	67	21	0	0.36
H	1993 070345	M Willamette R	Youngs R	02/09/95	39,519	79,336	37.45	10	2	0	0	0	5	0	0	0	0	0	1	3	118	91	4	0.59
H	1993 070343	M Willamette R	Youngs R	03/07/95	52,446	156,519	56.00	28	10	0	0	0	0	0	0	0	0	0	26	5	196	201	2	0.89
H	1993 070344	M Willamette R	Youngs R	03/30/95	52,224	127,367	61.21	33	1	0	0	0	0	0	0	0	0	0	12	1	132	168	10	0.68
H	1994 071120	Clackamas R	Youngs R	03/21/96	41,085	97,945	45.31	10	0	0	0	0	0	0	0	0	0	0	0	2	36	60	3	0.27
H	1994 071121	S Santiam R	Youngs R	02/05/96	53,685	142,976	38.41	3	0	0	0	0	0	0	0	0	0	0	0	1	29	36	0	0.13
H	1994 071122	S Santiam R	Youngs R	02/29/96	51,737	133,517	42.75	3	0	0	0	0	0	0	0	0	0	0	0	0	32	22	0	0.11
H	1995 091737	M Willamette R	Youngs R	02/01/97	49,944	100,680	24.87	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0.00
H	1995 091738	M Willamette R	Youngs R	03/05/97	49,341	96,540	29.63	2	0	0	0	0	0	0	0	0	0	0	0	0	15	14	0	0.06
H	1995 091739	M Willamette R	Youngs R	04/04/97	50,208	95,396	31.07	5	0	0	0	0	0	0	0	0	0	0	0	0	17	46	0	0.14
H	1995 091740	M Willamette R	Youngs R	04/04/97	50,139	94,612	35.71	2	0	0	0	0	0	0	0	0	0	0	0	0	43	61	0	0.21
Clackamas:																								
H	1986 074713	Clackamas R	Clackamas R	08/12/87	55,969	57,345	53.98	3	0	0	0	0	0	0	0	0	0	0	0	1	9	33	0	0.08
H	1986 073719	Clackamas R	Clackamas R	04/14/88	13,440	14,562	61.29	23	15	26	0	0	11	0	0	0	0	0	0	1	91	110	9	2.13
H	1987 075052	Clackamas R	Clackamas R	09/27/88	56,076	503,632	44.90	11	0	2	0	0	0	0	0	0	0	0	0	3	36	38	0	0.16
H	1987 074653	Clackamas R	Clackamas R	03/14/89	5,795	625,310	46.75	9	0	2	0	0	0	0	0	0	0	0	0	0	34	37	1	1.43
H	1988 075201	Clackamas R	Clackamas R	08/14/89	28,856	397,502	40.86	13	0	11	0	0	11	0	6	0	0	0	1	12	47	9	0	0.38
H	1988 075202	Clackamas R	Clackamas R	09/12/89	31,363	323,283	43.61	14	9	0	0	4	10	0	0	0	0	0	0	12	29	8	0	0.27
H	1988 075203	Clackamas R	Clackamas R	03/12/90	16,280	290,926	40.49	27	8	18	4	2	38	0	3	3	0	0	2	8	86	154	1	2.17
H	1988 075205	Clackamas R	Clackamas R	03/12/90	15,333	272,542	43.61	24	7	11	0	4	16	0	0	2	0	0	1	6	135	137	4	2.26
H	1989 075436	Clackamas R	Clackamas R	08/15/90	26,743	157,653	41.61	3	0	3	0	0	3	0	0	0	0	0	1	4	28	4	0	0.17
H	1989 075437	Clackamas R	Clackamas R	08/15/90	26,773	157,331	41.61	8	0	0	0	0	0	0	0	0	0	0	0	11	29	7	0	0.21
H	1989 075438	Clackamas R	Clackamas R	09/14/90	25,546	158,511	54.64	8	0	7	0	0	7	0	0	2	0	0	0	0	15	9	0	0.19
H	1989 075439	Clackamas R	Clackamas R	09/14/90	26,641	159,663	54.64	19	0	0	0	0	0	0	0	0	0	0	0	3	25	9	1	0.21
H	1989 075349	Clackamas R	Clackamas R	03/18/91	15,818	248,316	39.44	14	1	3	0	4	0	0	0	4	0	0	0	2	25	80	4	0.87
H	1989 075350	Clackamas R	Clackamas R	03/18/91	15,456	248,207	39.44	18	4	14	0	0	0	0	0	0	0	0	0	1	30	66	9	0.92
H	1990 075452	Clackamas R	Clackamas R	08/05/91	49,085	308,340	33.59	0	0	0	0	0	0	0	0	0	0	0	0	4	19	7	0	0.06
H	1990 075346	Clackamas R	Clackamas R	09/03/91	50,949	315,000	50.39	3	0	2	0	0	0	0	0	0	0	0	0	5	48	34	0	0.20
H	1990 075661	Clackamas R	Clackamas R	03/16/92	34,495	412,274	51.54	12	6	9	0	0	0	1	0	0	0	0	0	7	147	149	0	0.96
H	1991 075811	Clackamas R	Clackamas R	08/24/92	45,463	302,092	32.39	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0.01
H	1991 070017	Clackamas R	Clackamas R	08/24/92	43,091	282,079	38.43	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0.01
H	1991 075735	Clackamas R	Clackamas R	03/29/93	30,427	447,387	31.07	7	2	0	0	0	0	0	0	0	0	0	0	1	95	43	0	0.49
H	1992 075903	Clackamas R	Clackamas R	08/13/93	46,472	300,602	39.78	0	3	4	0	0	0	0	0	0	0	0	3	0	20	56	2	0.19
H	1992 075902	Clackamas R	Clackamas R	09/13/93	52,297	297,112	52.13	0	0	0	0	0	0	0	0	6	0	0	1	4	39	5	0	0.11
H	1992 070346	Clackamas R	Clackamas R	04/04/94	28,594	239,158	25.48	2	0	0	0	7	0	0	0	5	0	0	1	0	76	58	1	0.52
H	1993 070231	Clackamas R	Clackamas R	08/08/94	51,497	317,468	40.46	0	0	2	0	0	0	0	0	2	0	0	0	9	64	7	0	0.16
H	1993 070361	Clackamas R	Clackamas R	08/11/94	51,100	335,055	32.15	0	0	0	0	0	0	0	0	3	4	0	0	5	47	12	0	0.14



Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		%				
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries									
brood, tagcode	Hatchery			Date	Ad+CWT		Total	AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5	6+	Surv.	
SPRING CHINOOK SALMON (Continued)																										
Clackamas (Continued):																										
H	1993 070446	Clackamas R	Clackamas R	04/03/95	29,005	361,702	31.92	12	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0.97			
H	1994 071518	Clackamas R	Clackamas R	08/07/95	24,761	345,103	29.06	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.03			
H	1994 074522	Clackamas R	Clackamas R	08/07/95	25,946	267,698	30.22	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1	0.04			
H	1994 070859	Clackamas R	Clackamas R	03/19/96	25,985	379,140	41.20	19	8	0	0	0	0	3	0	0	3	0	0	0	3	1	1.12			
H	1995 070237	Clackamas R	Clackamas R	08/14/96	45,475	615,580	43.20	0	0	0	0	0	0	0	0	0	0	0	0	0	7	25	4	0.08		
H	1995 071357	Clackamas R	Clackamas R	03/31/97	29,211	390,111	33.35	32	0	0	0	0	0	2	3	0	0	0	0	0	0	1	101	149	0	1.00
H	1987 074654	M Willamette R	Clackamas R	03/09/89	15,417	303,953	47.74	14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0.98			
H	1986 073720	S Santiam R	Clackamas R	03/03/88	15,553	15,838	50.39	33	17	0	0	6	0	0	0	0	0	0	0	0	12	154	128	0	2.25	
H	1991 075655	Clackamas R	Sandy R	03/16/93	51,764	371,484	33.10	0	5	0	0	0	0	0	0	0	0	0	0	0	0	31	3	0	0.08	
H	1992 070354	Clackamas R	Sandy R	03/22/94	25,177	344,893	37.48	3	0	4	0	0	0	0	0	0	3	0	0	0	0	2	0	0	0.05	
H	1993 070553	Clackamas R	Sandy R	03/15/95	23,927	459,479	45.31	6	4	0	0	0	2	0	0	2	0	0	0	0	0	5	12	0	0.13	
H	1994 071151	Clackamas R	Sandy R	03/15/96	23,634	421,768	48.77	22	0	12	0	0	0	0	0	3	0	0	0	0	0	11	9	0	0.26	
H	1995 075333	Clackamas R	Sandy R	03/20/97	23,280	429,117	42.59	5	0	1	0	0	2	0	0	0	0	0	0	0	0	10	10	0	0.12	
Irrigon:																										
H	1986 074011	Rapid R (Idaho)	Lookingglass Cr	05/20/87	40,831	57,797	12.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1986 074012	Rapid R (Idaho)	Lookingglass Cr	05/20/87	41,293	58,450	12.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1986 074013	Rapid R (Idaho)	Lookingglass Cr	05/20/87	40,782	57,727	12.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1987 074523	Rapid R (Idaho)	Lookingglass Cr	05/13/88	42,697	47,837	15.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1987 074524	Rapid R (Idaho)	Lookingglass Cr	05/13/88	41,703	46,723	15.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00	
H	1987 074525	Rapid R (Idaho)	Lookingglass Cr	05/13/88	41,524	46,522	15.48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1988 074534	Rapid R (Idaho)	Lookingglass Cr	05/15/89	41,667	42,322	12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1988 074634	Rapid R (Idaho)	Lookingglass Cr	05/15/89	41,267	42,322	12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1988 074736	Rapid R (Idaho)	Lookingglass Cr	05/15/89	40,234	42,056	12.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
Lookingglass:																										
M	1986 074302	Imnaha R	Imnaha R	03/01/88	49,711	52,525	41.23	0	0	0	0	0	0	0	0	0	0	6	36	66	7	0	0.23			
M	1986 074260	Imnaha R	Imnaha R	03/01/88	46,760	49,639	45.81	0	0	0	0	0	1	0	0	0	0	11	34	65	7	0	0.25			
M	1986 074301	Imnaha R	Imnaha R	03/01/88	45,343	48,674	50.96	0	0	0	0	0	0	0	0	0	0	0	21	39	9	0	0.15			
M	1986 074263	Imnaha R	Imnaha R	03/01/88	44,536	48,668	51.54	0	0	0	0	0	0	0	0	0	0	1	22	46	6	0	0.17			
M	1987 074544	Imnaha R	Imnaha R	04/05/89	45,195	47,616	28.34	0	0	0	0	0	0	0	0	0	0	0	20	47	18	0	0.19			
M	1987 074545	Imnaha R	Imnaha R	04/05/89	45,394	47,251	28.34	0	0	0	0	0	0	0	0	0	0	2	10	31	11	0	0.12			
M	1987 074546	Imnaha R	Imnaha R	04/05/89	44,002	47,453	28.34	0	0	0	0	0	0	0	0	0	0	0	15	49	11	0	0.17			
M	1988 074733	Imnaha R	Imnaha R	03/31/90	65,002	76,019	24.78	0	0	0	0	2	0	0	0	0	0	0	42	81	78	0	0.31			
M	1988 074734	Imnaha R	Imnaha R	03/31/90	61,609	73,341	24.78	0	0	0	0	3	0	0	0	0	0	0	51	93	77	0	0.36			
M	1988 074729	Imnaha R	Imnaha R	03/31/90	48,878	49,272	35.99	0	0	0	0	3	0	0	0	0	0	2	24	98	67	1	0.40			
M	1988 074730	Imnaha R	Imnaha R	03/31/90	50,779	51,163	35.99	0	0	0	0	0	0	0	0	0	1	23	67	79	1	0.34				
M	1989 075046	Imnaha R	Imnaha R	03/22/91	42,834	79,611	20.16	0	0	0	0	0	0	0	0	0	0	3	39	3	0	0.11				

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			% Surv.		
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries								
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+	
SPRING CHINOOK SALMON (Continued)																									
Lookingglass (Continued):																									
M	1989	075045	Imnaha R	Imnaha R	03/22/91	42,804	79,654	20.43	0	0	0	0	0	0	0	0	0	0	0	0	2	29	15	0	0.11
M	1989	075043	Imnaha R	Imnaha R	03/22/91	40,770	56,848	27.49	0	0	0	0	0	0	0	0	0	0	0	0	9	38	5	0	0.13
M	1989	075040	Imnaha R	Imnaha R	03/22/91	41,582	51,557	29.26	0	0	0	0	0	0	0	0	0	0	0	0	13	38	4	0	0.13
M	1990	075848	Imnaha R	Imnaha R	03/30/92	42,444	43,555	21.00	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0.01
M	1990	075849	Imnaha R	Imnaha R	03/30/92	43,433	43,547	21.00	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0.01
M	1990	075844	Imnaha R	Imnaha R	03/30/92	42,208	42,894	21.60	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.00
M	1990	075845	Imnaha R	Imnaha R	03/30/92	42,902	42,902	21.60	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0.02
M	1990	075846	Imnaha R	Imnaha R	03/30/92	45,075	45,256	41.23	0	0	0	0	0	0	0	0	0	0	0	1	6	14	0	0	0.05
M	1990	075847	Imnaha R	Imnaha R	03/30/92	43,315	44,346	41.23	0	0	0	0	0	0	0	0	0	0	0	7	6	1	0	0	0.03
M	1991	071540	Imnaha R	Imnaha R	04/12/93	49,077	49,470	18.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
M	1991	071541	Imnaha R	Imnaha R	04/12/93	49,365	49,465	18.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.00
M	1991	071538	Imnaha R	Imnaha R	04/12/93	29,330	29,548	37.80	0	0	0	0	0	0	0	0	0	0	0	6	1	1	0	0	0.03
M	1991	071539	Imnaha R	Imnaha R	04/12/93	29,114	29,176	37.80	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
M	1992	076362	Imnaha R	Imnaha R	04/11/94	81,997	84,013	17.65	0	0	0	0	0	0	0	0	0	0	0	1	18	4	0	0	0.03
M	1992	076363	Imnaha R	Imnaha R	04/11/94	80,404	83,900	18.90	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0.00
M	1992	070117	Imnaha R	Imnaha R	04/11/94	81,508	83,930	22.23	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0.00
M	1992	070116	Imnaha R	Imnaha R	04/11/94	78,785	83,334	22.34	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0	0.01
M	1992	070118	Imnaha R	Imnaha R	04/11/94	49,471	52,075	29.84	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
M	1992	070119	Imnaha R	Imnaha R	04/11/94	49,682	51,365	30.64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
M	1993	070746	Imnaha R	Imnaha R	03/28/95	72,015	72,959	18.36	0	0	0	0	0	0	0	0	0	0	0	5	16	14	0	0	0.05
M	1993	070748	Imnaha R	Imnaha R	03/28/95	75,831	77,318	19.53	0	0	0	0	0	0	0	0	0	0	3	0	1	42	8	0	0.07
M	1993	070745	Imnaha R	Imnaha R	03/28/95	77,200	77,952	20.41	0	0	0	0	0	0	0	0	0	0	0	2	35	19	0	0	0.07
M	1993	070751	Imnaha R	Imnaha R	03/28/95	47,084	48,723	25.74	0	0	0	0	0	0	0	0	0	0	0	14	41	11	0	0	0.14
M	1993	070750	Imnaha R	Imnaha R	03/28/95	49,576	50,222	26.19	0	0	0	0	0	0	0	0	0	0	1	5	24	8	0	0	0.08
M	1993	070747	Imnaha R	Imnaha R	04/24/95	64,414	67,130	22.13	0	0	0	0	0	0	0	0	0	0	0	9	26	7	0	0	0.07
M	1994	071229	Imnaha R	Imnaha R	04/03/96	22,069	22,840	22.32	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.00
M	1994	071228	Imnaha R	Imnaha R	04/03/96	22,643	22,915	23.36	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.01
M	1994	071230	Imnaha R	Imnaha R	04/03/96	10,695	10,887	23.85	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.02
M	1994	071225	Imnaha R	Imnaha R	04/03/96	13,635	13,839	25.74	0	0	0	0	0	0	0	0	0	0	0	1	7	2	0	0	0.07
M	1994	071226	Imnaha R	Imnaha R	04/03/96	13,376	13,890	25.89	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.01
M	1994	071227	Imnaha R	Imnaha R	04/03/96	6,847	6,869	27.81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
M	1995	091719	Imnaha R	Imnaha R	04/07/97	4,924	4,980	19.72	0	0	0	0	0	0	0	0	0	0	0	7	1	0	0	0	0.16
M	1995	091723	Imnaha R	Imnaha R	04/07/97	15,858	16,588	19.72	0	0	0	0	0	0	0	0	0	0	0	9	16	1	0	0	0.16
M	1995	091722	Imnaha R	Imnaha R	04/07/97	12,749	12,835	21.91	0	0	0	0	0	0	0	0	0	0	0	13	15	3	0	0	0.24
M	1995	091721	Imnaha R	Imnaha R	04/07/97	9,742	9,896	29.84	0	0	0	0	0	0	0	0	0	0	1	8	5	3	0	0	0.17
M	1995	091720	Imnaha R	Imnaha R	04/07/97	6,390	6,613	32.17	0	0	0	0	0	0	0	0	0	0	0	1	8	1	0	0	0.16
H	1986	074022	Lookingglass Cr	Lookingglass Cr	07/20/87	43,086	43,521	7.77	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.00
H	1986	074023	Lookingglass Cr	Lookingglass Cr	07/20/87	43,127	57,397	7.77	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00

Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																			% Surv.	
stock, (source H, N, M),		Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries						
brood, tagcode	Hatchery		Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+
SPRING CHINOOK SALMON (Continued)																							
Lookingglass (Continued):																							
H	1986 074016	Rapid R (Idaho)	Lookingglass Cr	09/18/87	38,378	39,482	20.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1986 074017	Rapid R (Idaho)	Lookingglass Cr	09/18/87	41,232	42,420	20.04	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0.01
H	1986 074018	Rapid R (Idaho)	Lookingglass Cr	11/03/87	38,501	40,858	19.87	0	0	0	0	0	0	0	0	0	0	0	0	14	2	0	0.04
H	1986 074019	Rapid R (Idaho)	Lookingglass Cr	11/03/87	39,188	41,587	19.87	0	0	0	0	0	0	0	0	0	0	0	0	27	4	0	0.08
H	1986 074020	Rapid R (Idaho)	Lookingglass Cr	03/01/88	41,266	42,455	22.56	0	0	0	0	0	0	0	0	0	0	0	0	62	32	0	0.23
H	1986 074021	Rapid R (Idaho)	Lookingglass Cr	03/01/88	42,744	43,975	22.56	0	0	0	0	0	0	0	0	2	0	3	104	37	0	0.34	
H	1986 074015	Rapid R (Idaho)	Lookingglass Cr	03/01/88	42,057	43,824	34.36	0	0	0	0	0	0	0	0	0	1	5	46	13	0	0.15	
H	1986 074014	Rapid R (Idaho)	Lookingglass Cr	03/01/88	42,339	43,558	34.62	0	0	0	0	0	0	0	0	0	0	5	32	10	0	0.11	
H	1987 074630	Rapid R (Idaho)	Lookingglass Cr	09/23/88	43,220	44,225	20.90	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0.01
H	1987 074631	Rapid R (Idaho)	Lookingglass Cr	09/23/88	40,399	41,339	20.90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1987 074632	Rapid R (Idaho)	Lookingglass Cr	11/01/88	42,837	43,176	21.70	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	0.01
H	1987 074633	Rapid R (Idaho)	Lookingglass Cr	11/01/88	42,796	43,134	21.70	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00
H	1987 074531	Rapid R (Idaho)	Lookingglass Cr	04/03/89	43,390	43,561	23.26	0	0	0	0	0	0	0	0	0	0	0	0	12	7	0	0.04
H	1987 074532	Rapid R (Idaho)	Lookingglass Cr	04/03/89	42,987	43,157	23.26	0	0	0	0	0	0	0	0	0	0	1	10	8	0	0.04	
H	1987 074535	Rapid R (Idaho)	Lookingglass Cr	04/03/89	43,283	50,591	32.86	0	0	0	0	0	0	0	0	0	2	0	23	15	0	0.09	
H	1987 074533	Rapid R (Idaho)	Lookingglass Cr	04/03/89	43,287	50,491	33.84	0	0	0	0	0	0	0	0	0	1	1	13	20	1	0.08	
H	1988 074740	Rapid R (Idaho)	Lookingglass Cr	04/02/90	41,780	258,974	22.45	0	0	0	0	0	0	0	0	0	0	6	64	69	0	0.33	
H	1988 074739	Rapid R (Idaho)	Lookingglass Cr	04/02/90	42,187	257,822	22.68	0	0	0	0	0	0	0	0	0	0	3	73	70	0	0.35	
H	1988 074745	Rapid R (Idaho)	Lookingglass Cr	04/02/90	43,479	51,508	34.89	0	0	0	0	0	0	0	0	0	0	18	147	45	0	0.48	
H	1988 074743	Rapid R (Idaho)	Lookingglass Cr	04/02/90	43,788	51,335	37.17	0	0	0	0	0	0	0	0	0	1	15	92	59	0	0.38	
H	1989 075053	Rapid R (Idaho)	Lookingglass Cr	04/01/91	42,705	118,145	21.80	0	0	0	0	0	0	0	0	0	1	0	47	4	0	0.12	
H	1989 075054	Rapid R (Idaho)	Lookingglass Cr	04/01/91	43,450	118,564	22.23	0	0	0	0	0	0	0	0	0	0	0	41	4	0	0.10	
H	1989 075048	Rapid R (Idaho)	Lookingglass Cr	04/01/91	42,698	47,416	32.39	0	0	0	0	0	0	0	0	0	0	0	38	2	0	0.09	
H	1989 075051	Rapid R (Idaho)	Lookingglass Cr	04/01/91	42,859	47,509	33.35	0	0	0	0	0	0	0	0	0	0	2	39	0	0	0.10	
H	1990 075306	Rapid R (Idaho)	Lookingglass Cr	04/01/92	43,738	425,445	23.02	0	0	0	0	0	0	0	0	0	0	0	9	3	0	0.03	
H	1990 075305	Rapid R (Idaho)	Lookingglass Cr	04/01/92	43,631	424,069	23.38	0	0	0	0	0	0	0	0	0	0	1	22	0	0	0.05	
H	1990 074746	Rapid R (Idaho)	Lookingglass Cr	04/01/92	39,623	50,595	46.75	0	0	0	0	0	0	0	0	0	0	2	7	1	0	0.03	
H	1990 075055	Rapid R (Idaho)	Lookingglass Cr	04/01/92	40,123	50,759	47.74	0	0	0	0	0	0	0	0	0	0	2	17	7	0	0.06	
H	1991 071548	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,011	35,152	22.13	0	0	0	0	0	0	0	0	0	1	0	18	1	0	0.06	
H	1991 071550	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,351	35,626	22.13	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0.02	
H	1991 071551	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,460	35,626	22.13	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0.03	
H	1991 071546	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,580	35,662	22.68	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0.01	
H	1991 071547	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,583	35,662	22.68	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0.02	
H	1991 071553	Rapid R (Idaho)	Lookingglass Cr	04/07/93	34,812	35,093	22.68	0	0	0	0	0	0	0	0	0	0	2	9	1	0	0.03	
H	1991 071555	Rapid R (Idaho)	Lookingglass Cr	04/07/93	34,822	34,965	22.68	0	0	0	0	0	0	0	0	0	0	2	16	0	0	0.05	
H	1991 071552	Rapid R (Idaho)	Lookingglass Cr	04/07/93	36,445	36,738	22.91	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0.03	
H	1991 071554	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,190	35,190	22.91	0	0	0	0	0	0	0	0	0	0	2	5	1	0	0.02	
H	1991 071556	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,176	35,176	22.91	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0.02	

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.	
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries						
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5
SPRING CHINOOK SALMON (Continued)																							
Lookingglass (Continued):																							
H	1991 071557	Rapid R (Idaho)	Lookingglass Cr	04/07/93	34,753	34,962	23.02	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0.02
H	1991 071558	Rapid R (Idaho)	Lookingglass Cr	04/07/93	23,063	23,155	23.14	0	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0.06
H	1991 071549	Rapid R (Idaho)	Lookingglass Cr	04/07/93	35,002	35,212	23.26	0	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0.02
H	1992 070441	Rapid R (Idaho)	Lookingglass Cr	04/10/94	74,132	76,403	22.23	0	0	0	0	0	0	0	0	0	0	0	2	50	8	0	0.08
H	1992 075307	Rapid R (Idaho)	Lookingglass Cr	04/10/94	68,959	71,133	22.23	0	0	0	0	0	0	0	0	0	0	0	7	75	9	0	0.13
H	1992 075308	Rapid R (Idaho)	Lookingglass Cr	04/10/94	68,693	71,371	22.45	0	0	0	0	0	0	0	0	0	0	0	2	71	8	0	0.12
H	1992 070434	Rapid R (Idaho)	Lookingglass Cr	04/10/94	80,275	83,838	22.56	0	0	0	0	0	0	0	0	0	0	0	0	42	5	0	0.06
H	1992 070439	Rapid R (Idaho)	Lookingglass Cr	04/10/94	79,827	81,285	23.02	0	0	0	0	0	0	0	0	0	0	0	4	62	6	0	0.09
H	1992 070436	Rapid R (Idaho)	Lookingglass Cr	04/10/94	77,160	81,071	23.62	0	0	0	0	0	0	0	0	0	0	0	4	77	6	0	0.11
H	1992 070437	Rapid R (Idaho)	Lookingglass Cr	04/10/94	79,481	81,158	24.00	0	0	0	0	0	0	0	0	0	0	0	11	115	11	0	0.17
H	1992 070447	Rapid R (Idaho)	Lookingglass Cr	04/10/94	32,160	34,522	24.51	0	0	0	0	0	0	0	0	0	0	0	5	29	8	0	0.13
H	1992 070448	Rapid R (Idaho)	Lookingglass Cr	04/10/94	33,231	34,647	24.65	0	0	0	0	0	0	0	0	0	0	0	2	37	5	0	0.13
H	1992 070440	Rapid R (Idaho)	Lookingglass Cr	05/06/94	67,540	69,068	27.16	0	0	0	0	0	0	0	0	0	0	0	0	15	1	0	0.02
H	1992 070438	Rapid R (Idaho)	Lookingglass Cr	05/06/94	77,722	80,627	28.70	0	0	0	0	0	0	0	0	0	0	0	0	5	1	0	0.01
H	1993 070824	Rapid R (Idaho)	Lookingglass Cr	04/05/95	77,133	85,980	20.05	0	0	0	0	0	0	0	0	0	0	0	3	42	21	0	0.09
H	1993 070829	Rapid R (Idaho)	Lookingglass Cr	04/05/95	87,087	88,189	20.23	0	0	0	0	0	0	0	0	0	0	0	2	43	18	0	0.07
H	1993 070828	Rapid R (Idaho)	Lookingglass Cr	04/05/95	85,509	87,745	20.98	5	0	0	0	0	0	0	0	0	0	0	3	68	25	0	0.12
H	1993 070825	Rapid R (Idaho)	Lookingglass Cr	04/05/95	75,678	86,299	21.68	0	0	0	0	0	0	0	0	0	0	0	2	48	13	1	0.08
H	1993 070823	Rapid R (Idaho)	Lookingglass Cr	04/06/95	84,234	86,934	19.79	0	0	0	0	0	0	0	0	0	0	0	1	35	8	0	0.05
H	1993 070827	Rapid R (Idaho)	Lookingglass Cr	04/06/95	86,435	88,097	20.32	0	0	0	0	0	0	0	0	0	0	0	12	86	32	0	0.15
H	1993 070826	Rapid R (Idaho)	Lookingglass Cr	04/06/95	65,983	66,204	21.27	0	0	0	0	0	0	0	0	0	0	0	2	59	17	0	0.12
H	1993 070822	Rapid R (Idaho)	Lookingglass Cr	04/06/95	68,559	68,782	21.68	0	0	0	0	0	0	0	3	0	0	0	2	32	10	0	0.07
H	1994 071234	Rapid R (Idaho)	Lookingglass Cr	04/05/96	32,997	34,786	22.10	0	0	0	0	0	0	0	0	0	4	0	14	2	0	0	0.06
H	1994 071232	Rapid R (Idaho)	Lookingglass Cr	04/05/96	34,379	35,292	22.21	0	0	0	0	0	0	0	0	0	0	0	14	5	0	0	0.06
H	1994 071233	Rapid R (Idaho)	Lookingglass Cr	04/05/96	33,534	34,809	22.77	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0.02
H	1994 071231	Rapid R (Idaho)	Lookingglass Cr	04/05/96	33,902	34,225	22.79	0	0	0	0	0	0	0	0	0	3	1	9	0	0	0	0.04
H	1995 091726	Rapid R (Idaho)	Lookingglass Cr	04/07/97	36,172	37,974	20.25	0	0	0	0	0	0	0	0	0	0	0	8	145	8	0	0.45
H	1995 091727	Rapid R (Idaho)	Lookingglass Cr	04/07/97	37,156	38,962	21.81	0	0	0	0	0	0	0	0	0	0	0	8	111	3	0	0.33
H	1995 091725	Rapid R (Idaho)	Lookingglass Cr	04/07/97	36,310	37,785	21.91	0	0	0	0	0	0	0	0	0	0	0	2	137	4	0	0.39
H	1995 091724	Rapid R (Idaho)	Lookingglass Cr	04/07/97	37,340	38,756	22.68	0	0	0	0	0	0	0	0	0	0	0	6	128	8	0	0.38
H	1995 091728	Rapid R (Idaho)	Lookingglass Cr	07/25/97	29,298	30,880	2.99	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0.04
H	1992 070435	Rapid R (Idaho)	Snake R	04/12/94	79,382	84,051	23.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
Marion Forks:																							
H	1986 074962	N Santiam R	Santiam R & N Fk	03/07/88	26,055	30,474	44.46	50	15	32	0	0	7	0	0	0	0	0	4	111	252	10	1.85
H	1987 075047	N Santiam R	Santiam R & N Fk	03/10/89	30,076	30,258	48.77	53	12	0	0	0	9	0	0	0	0	0	15	203	151	4	1.51
H	1988 073721	N Santiam R	Santiam R & N Fk	03/08/90	15,931	225,255	43.61	16	0	13	0	0	8	1	0	0	0	0	2	79	95	0	1.34
H	1988 075206	N Santiam R	Santiam R & N Fk	03/08/90	15,987	225,096	43.61	2	5	0	0	0	9	0	0	0	0	0	0	46	101	0	1.02

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																			% Surv.								
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries													
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5		6+							
SPRING CHINOOK SALMON (Continued)																															
Marion Forks (Continued):																															
H	1989	075528	N Santiam R	Santiam R & N Fk	03/06/91	15,807	262,959	36.28	9	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	45	40	1	0.61	
H	1989	075527	N Santiam R	Santiam R & N Fk	03/06/91	15,876	261,382	36.57	14	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	33	41	0	0.58	
H	1990	075710	N Santiam R	Santiam R & N Fk	03/06/92	17,405	297,234	38.76	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	12	0	0.16	
H	1990	075711	N Santiam R	Santiam R & N Fk	03/06/92	17,430	256,653	41.23	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	19	2	0.18	
H	1991	076119	N Santiam R	Santiam R & N Fk	03/18/93	9,020	17,752	29.65	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	10	0	0.23	
H	1991	076114	N Santiam R	Santiam R & N Fk	03/18/93	9,282	16,285	30.04	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0.06	
H	1991	076118	N Santiam R	Santiam R & N Fk	03/18/93	9,655	17,748	34.62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	27	4	0	0.33
H	1991	076116	N Santiam R	Santiam R & N Fk	03/18/93	9,327	19,872	34.89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	4	0	0.14	
H	1991	073722	N Santiam R	Santiam R & N Fk	03/18/93	16,146	331,526	37.80	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	14	0	0.43	
H	1991	076115	N Santiam R	Santiam R & N Fk	03/18/93	9,211	21,078	40.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	3	0	0.10	
H	1991	076117	N Santiam R	Santiam R & N Fk	03/18/93	8,861	20,656	40.86	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	0	0.12	
H	1992	070430	N Santiam R	Santiam R & N Fk	03/02/94	13,347	240,979	40.49	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	2	0	0.28	
H	1992	070431	N Santiam R	Santiam R & N Fk	03/03/94	15,122	248,846	35.99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0.02	
H	1993	076125	N Santiam R	Santiam R & N Fk	03/01/95	15,054	326,851	39.07	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	7	0	0.17	
H	1993	076338	N Santiam R	Santiam R & N Fk	03/01/95	15,726	338,833	39.07	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	27	13	0	0.32	
H	1994	070861	N Santiam R	Santiam R & N Fk	03/01/96	12,363	340,609	34.86	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	8	0	0.23	
H	1994	070862	N Santiam R	Santiam R & N Fk	03/01/96	13,324	358,793	34.86	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	25	0	0.34	
H	1995	071259	N Santiam R	Santiam R & N Fk	03/04/97	16,925	353,789	34.89	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	35	0	0.44	
H	1995	071260	N Santiam R	Santiam R & N Fk	03/04/97	16,270	342,646	35.44	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	23	0	0.33	
H	1986	075001	N Santiam R	Santiam R, S Fk	03/07/88	25,600	31,181	47.24	39	19	14	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	172	245	1	1.95	
H	1987	075044	N Santiam R	Santiam R, S Fk	03/10/89	29,305	29,751	47.24	42	11	5	0	0	22	0	0	0	0	0	0	0	0	0	1	2	202	148	22	1.55		
McKenzie:																															
H	1986	075002	McKenzie R	McKenzie R	11/12/87	28,615	30,312	52.13	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	55	5	0.33	
H	1986	075004	McKenzie R	McKenzie R	03/01/88	29,737	31,138	63.88	61	29	41	0	0	8	0	0	0	0	0	0	0	0	0	0	1	174	485	20	2.75		
H	1987	075049	McKenzie R	McKenzie R	11/14/88	31,261	357,836	58.90	12	7	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	76	74	0	0.57		
H	1987	075050	McKenzie R	McKenzie R	03/10/89	29,823	363,332	44.46	30	3	17	3	0	2	0	0	0	0	0	0	0	0	0	0	1	189	234	23	1.68		
H	1988	075158	McKenzie R	McKenzie R	11/09/89	15,287	106,572	55.99	11	0	4	0	0	3	0	0	0	0	0	0	0	0	0	2	25	29	1	0.49			
H	1988	075159	McKenzie R	McKenzie R	11/09/89	15,664	106,876	55.99	26	3	0	0	0	2	0	0	0	0	0	0	2	0	1	23	22	0	0.50				
H	1988	075160	McKenzie R	McKenzie R	03/08/90	14,862	215,243	49.84	9	5	0	0	0	18	0	0	0	0	0	0	0	3	16	70	102	1	1.51				
H	1988	075161	McKenzie R	McKenzie R	03/08/90	15,345	221,202	49.84	20	4	9	0	0	10	0	0	0	0	0	0	0	0	0	0	0	65	92	3	1.32		
H	1989	075522	McKenzie R	McKenzie R	11/16/90	17,493	65,430	62.99	3	7	0	0	0	0	0	0	0	0	0	0	0	1	1	14	6	0	0.18				
H	1989	075523	McKenzie R	McKenzie R	11/16/90	15,958	59,689	62.99	6	0	0	0	0	0	0	0	0	0	0	0	0	1	24	8	0	0.24					
H	1989	075524	McKenzie R	McKenzie R	11/16/90	17,627	65,840	64.79	3	0	0	0	0	0	0	0	0	0	0	0	0	2	9	7	0	0.12					
H	1989	075525	McKenzie R	McKenzie R	03/07/91	17,289	335,157	50.96	15	0	5	0	3	2	0	0	0	0	0	0	0	0	8	11	24	1	0.40				
H	1989	075526	McKenzie R	McKenzie R	03/07/91	17,274	334,888	50.96	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	35	21	1	0.36			
H	1990	075656	McKenzie R	McKenzie R	11/15/91	49,264	236,504	59.67	3	0	4	0	0	0	0	0	2	0	0	0	0	0	3	76	81	0	0.36				
H	1990	075629	McKenzie R	McKenzie R	03/12/92	30,985	52,269	36.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	3	1	0.04		

Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																			%
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					Surv.
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	
SPRING CHINOOK SALMON (Continued)																						
McKenzie (Continued):																						
H	1990 075660	McKenzie R	McKenzie R	03/12/92	32,253	52,777	39.10	3	0	0	0	0	0	0	0	0	0	0	9	20	0	0.10
H	1990 075630	McKenzie R	McKenzie R	03/12/92	30,743	681,011	49.84	0	0	0	0	0	0	0	0	0	0	0	2	6	0	0.03
H	1991 075734	McKenzie R	McKenzie R	11/13/92	30,724	228,440	53.99	4	3	0	0	0	0	0	0	0	3	0	12	17	0	0.13
H	1991 075733	McKenzie R	McKenzie R	03/10/93	30,720	50,130	28.53	2	0	0	0	3	0	0	0	0	3	0	16	19	1	0.14
H	1991 075818	McKenzie R	McKenzie R	03/10/93	31,021	54,025	38.12	0	0	0	0	0	0	0	0	0	0	0	28	36	1	0.22
H	1991 075732	McKenzie R	McKenzie R	03/10/93	31,196	472,747	53.36	46	0	0	0	0	0	0	0	0	0	0	17	22	0	0.27
H	1992 070428	McKenzie R	McKenzie R	02/09/94	230,137	245,806	35.16	2	0	0	0	1	0	0	0	2	0	0	92	186	7	0.13
H	1992 070429	McKenzie R	McKenzie R	03/02/94	50,401	51,757	34.10	2	0	0	0	0	0	0	0	0	0	0	11	12	1	0.05
H	1992 070236	McKenzie R	McKenzie R	03/02/94	46,383	49,575	38.11	0	0	0	0	0	0	0	0	0	0	5	16	29	1	0.11
H	1992 070240	McKenzie R	McKenzie R	03/02/94	144,006	158,024	50.39	2	5	0	0	0	0	0	0	0	0	1	92	200	5	0.21
H	1992 070254	McKenzie R	McKenzie R	03/02/94	37,895	41,583	50.39	2	5	0	0	0	0	0	0	0	0	1	30	46	1	0.22
H	1992 076121	McKenzie R	McKenzie R	03/02/94	169,400	185,890	50.39	25	5	0	0	0	0	0	0	0	0	4	146	260	5	0.26
H	1993 070444	McKenzie R	McKenzie R	03/01/95	27,924	162,283	53.30	3	0	0	0	0	0	0	0	0	0	1	34	29	1	0.25
H	1993 070850	McKenzie R	McKenzie R	03/01/95	27,738	160,901	53.30	0	4	0	0	3	0	0	0	0	0	0	9	22	0	0.14
H	1993 070851	McKenzie R	McKenzie R	03/01/95	27,022	156,999	53.30	3	0	0	0	0	0	0	0	0	0	0	25	24	0	0.19
H	1994 070445	McKenzie R	McKenzie R	02/08/96	29,805	193,730	52.08	7	0	0	0	2	0	0	0	0	0	0	34	34	0	0.26
H	1994 070450	McKenzie R	McKenzie R	02/08/96	30,170	194,516	52.08	9	0	0	0	0	0	0	0	0	0	0	34	25	0	0.24
H	1994 070860	McKenzie R	McKenzie R	03/08/96	25,058	203,991	58.83	0	0	0	0	0	0	0	0	0	0	1	24	19	0	0.18
H	1995 071317	McKenzie R	McKenzie R	02/06/97	33,634	287,606	34.16	4	0	0	0	0	0	0	0	0	0	0	35	34	0	0.22
H	1995 076140	McKenzie R	McKenzie R	02/06/97	30,091	199,692	49.84	3	0	0	0	0	0	0	0	0	0	0	35	46	0	0.28
H	1995 071258	McKenzie R	McKenzie R	03/06/97	29,143	144,642	52.14	2	0	0	0	0	0	0	0	0	0	0	42	47	0	0.31
H	1995 091803	McKenzie R	McKenzie R	03/06/97	34,167	163,306	52.14	2	0	10	0	0	0	0	0	0	0	1	62	55	0	0.38
H	1995 091804	McKenzie R	McKenzie R	03/06/97	33,838	158,639	52.14	5	0	0	0	0	0	0	0	0	0	0	50	76	0	0.39
H	1994 071045	Clackamas R	Willamette R	11/08/95	33,666	33,666	50.91	12	0	0	0	0	0	0	5	0	0	5	14	5	0	0.12
H	1994 071046	Clackamas R	Willamette R	11/08/95	25,317	25,624	52.08	9	0	2	0	0	0	0	0	0	0	1	15	16	0	0.17
H	1994 071047	Clackamas R	Willamette R	11/08/95	30,543	32,842	53.30	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0.02
H	1994 071048	Clackamas R	Willamette R	11/09/95	28,853	31,917	53.93	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0.01
H	1992 070455	McKenzie R	Willamette R	03/08/94	29,548	44,352	50.39	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.01
H	1992 070456	McKenzie R	Willamette R	03/08/94	29,606	43,373	51.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070457	McKenzie R	Willamette R	03/08/94	28,789	43,079	51.54	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.01
H	1992 070452	McKenzie R	Willamette R	03/08/94	30,862	43,127	53.35	4	0	0	0	0	0	0	0	0	0	1	6	2	0	0.04
H	1992 070454	McKenzie R	Willamette R	03/08/94	28,878	43,869	53.35	7	0	0	0	0	0	0	0	0	0	0	7	2	1	0.06
H	1992 070453	McKenzie R	Willamette R	03/08/94	30,382	38,747	54.64	0	3	0	0	0	0	0	4	0	0	0	2	4	0	0.04
H	1993 070833	McKenzie R	Willamette R	11/08/94	29,379	30,932	57.34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1993 070832	McKenzie R	Willamette R	11/08/94	29,487	31,363	58.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1993 070831	McKenzie R	Willamette R	11/08/94	29,712	31,578	58.83	3	0	0	0	0	0	0	0	0	0	0	14	14	1	0.11
H	1993 070834	McKenzie R	Willamette R	11/09/94	33,338	33,925	50.91	10	6	0	0	0	0	0	0	0	0	0	20	18	0	0.16
H	1993 070830	McKenzie R	Willamette R	11/09/94	27,441	30,793	55.25	12	0	0	0	0	0	0	3	0	0	0	7	16	0	0.14

Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																			%		
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries							
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+
SPRING CHINOOK SALMON (Continued)																								
McKenzie (Continued):																								
H	1993 070835	McKenzie R	Willamette R	11/09/94	20,540	21,149	62.91	2	0	0	0	0	0	0	0	0	0	0	0	18	18	2	0.19	
H	1993 070845	McKenzie R	Willamette R	02/24/95	21,226	29,610	50.34	0	0	0	0	0	0	0	0	0	0	0	0	9	4	0	0.06	
H	1993 070846	McKenzie R	Willamette R	02/24/95	20,880	29,610	50.34	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0.02	
H	1993 070848	McKenzie R	Willamette R	03/08/95	25,497	38,889	51.48	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0	0.03	
H	1993 070849	McKenzie R	Willamette R	03/08/95	26,957	42,075	51.48	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.01	
H	1993 070847	McKenzie R	Willamette R	03/08/95	31,139	43,208	52.08	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0.01	
H	1993 070836	McKenzie R	Willamette R	03/08/95	19,899	30,662	52.68	3	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0.07	
H	1995 091761	McKenzie R	Willamette R	03/13/97	29,020	42,067	44.91	2	0	0	0	0	0	0	0	0	0	0	0	18	4	0	0.08	
H	1995 091763	McKenzie R	Willamette R	03/13/97	29,888	42,720	50.96	2	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0.02	
H	1994 071050	Clackamas R	Clackamas R	03/15/96	39,454	40,014	55.93	0	0	0	0	0	0	0	0	0	0	0	0	7	5	0	0.03	
H	1994 071051	Clackamas R	Clackamas R	03/15/96	39,457	39,655	59.60	4	0	0	0	0	0	0	0	0	0	0	0	4	4	0	0.03	
H	1994 071049	Clackamas R	Clackamas R	03/15/96	41,471	42,078	61.21	0	0	0	0	0	0	0	0	0	0	0	0	4	2	0	0.01	
H	1994 071243	Clackamas R	Clackamas R	03/15/96	38,087	38,240	61.21	0	0	0	0	0	0	0	0	0	0	0	0	5	4	0	0.02	
H	1995 091801	M Willamette R	Clackamas R	03/13/97	30,529	42,561	47.75	0	0	0	0	0	0	0	0	0	0	0	0	12	11	0	0.08	
H	1995 091802	M Willamette R	Clackamas R	03/13/97	24,996	31,016	55.31	2	0	0	0	0	0	0	0	0	0	0	0	3	8	0	0.05	
H	1995 091758	McKenzie R	Clackamas R	11/08/96	29,049	29,491	56.70	0	0	0	0	0	0	0	0	0	0	0	0	15	19	0	0.12	
H	1995 091759	McKenzie R	Clackamas R	11/08/96	29,407	29,525	57.42	6	0	0	0	0	0	0	0	0	0	0	4	7	7	0	0.08	
H	1995 091756	McKenzie R	Clackamas R	11/08/96	29,610	29,942	63.88	2	0	0	0	0	0	0	0	0	0	0	0	29	6	0	0.12	
H	1995 091757	McKenzie R	Clackamas R	11/08/96	28,955	29,792	63.88	4	0	0	0	0	0	0	0	0	0	0	1	48	0	0	0.18	
H	1995 091754	McKenzie R	Clackamas R	11/08/96	33,415	34,916	64.80	9	0	0	0	0	0	0	0	0	0	0	5	52	18	0	0.25	
H	1995 091755	McKenzie R	Clackamas R	11/08/96	27,699	29,937	65.74	0	0	0	0	0	0	0	0	0	0	0	11	31	4	0	0.17	
H	1995 091760	McKenzie R	Clackamas R	03/13/97	30,170	39,085	49.84	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.00	
H	1995 091762	McKenzie R	Clackamas R	03/13/97	30,120	32,307	50.96	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0.01	
H	1995 076048	S Santiam R	Molalla R	03/18/97	19,881	63,890	44.91	2	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0.04	
Round Butte																								
H	1986 074461	Deschutes R	Deschutes R	04/12/88	51,430	54,221	65.73	0	0	0	0	1	0	0	0	0	0	0	28	234	476	15	0	1.47
H	1986 074462	Deschutes R	Deschutes R	04/22/88	58,379	61,271	55.31	0	1	0	0	0	2	0	0	0	0	0	29	374	926	23	0	2.32
H	1987 074623	Deschutes R	Deschutes R	04/17/89	27,322	29,528	71.99	0	0	3	0	0	0	0	0	0	0	0	11	41	260	13	0	1.20
H	1987 074622	Deschutes R	Deschutes R	04/18/89	26,546	28,186	62.13	0	0	0	0	0	0	0	0	0	0	0	17	58	292	33	0	1.51
H	1987 074626	Deschutes R	Deschutes R	05/04/89	19,971	20,458	42.78	0	0	0	0	0	15	0	0	0	0	0	8	15	243	19	0	1.50
H	1987 074624	Deschutes R	Deschutes R	05/04/89	19,396	20,473	47.74	0	0	0	0	0	0	0	0	0	0	0	13	58	205	30	0	1.58
H	1987 074625	Deschutes R	Deschutes R	05/04/89	19,608	20,408	48.77	0	4	0	0	0	0	0	0	0	0	0	6	19	221	18	0	1.37
M	1988 075062	Deschutes R	Deschutes R	04/19/90	28,093	28,608	75.59	0	0	0	0	0	0	0	0	0	0	0	16	65	200	11	0	1.04
M	1988 075061	Deschutes R	Deschutes R	04/20/90	28,821	29,590	69.77	0	0	0	0	0	0	0	0	0	0	0	15	63	137	7	0	0.77
M	1988 075058	Deschutes R	Deschutes R	05/16/90	23,673	66,964	42.38	0	0	0	0	0	0	0	0	0	0	0	1	73	388	37	0	2.11
M	1988 075059	Deschutes R	Deschutes R	05/16/90	20,757	67,634	46.75	0	0	0	0	0	0	0	0	0	0	0	3	69	265	32	0	1.78
M	1988 075060	Deschutes R	Deschutes R	05/16/90	20,901	66,651	51.54	0	0	0	0	0	0	0	0	0	0	0	3	68	307	30	0	1.95

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		%	
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					Surv.	
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5
SPRING CHINOOK SALMON (Continued)																							
Round Butte (Continued):																							
H	1989 075361	Deschutes R	Deschutes R	04/23/91	29,220	29,959	74.35	0	0	0	0	0	0	0	0	0	0	2	26	247	5	0	0.96
H	1989 075362	Deschutes R	Deschutes R	04/23/91	29,220	29,958	74.35	0	0	0	0	0	0	0	0	0	0	2	21	196	12	0	0.79
H	1989 075402	Deschutes R	Deschutes R	05/14/91	20,873	71,737	43.19	0	0	0	0	0	0	0	0	0	0	0	6	93	2	0	0.48
H	1989 075363	Deschutes R	Deschutes R	05/14/91	20,230	68,504	47.74	0	0	0	0	0	0	0	0	0	0	0	16	172	5	0	0.95
H	1989 075401	Deschutes R	Deschutes R	05/14/91	20,664	70,733	47.74	0	0	0	0	0	0	0	0	0	0	0	18	148	5	0	0.83
M	1990 075649	Deschutes R	Deschutes R	04/20/92	27,603	28,575	68.71	0	0	0	0	0	0	0	0	0	0	1	17	51	1	0	0.25
M	1990 075648	Deschutes R	Deschutes R	04/28/92	28,003	28,575	70.86	0	0	0	0	0	0	0	0	0	0	0	10	42	1	0	0.19
M	1990 075645	Deschutes R	Deschutes R	05/20/92	20,852	70,511	46.28	0	0	0	0	0	0	0	0	0	0	0	23	49	1	0	0.35
M	1990 075646	Deschutes R	Deschutes R	05/20/92	21,154	71,804	46.28	0	0	0	0	0	0	0	0	0	0	1	21	54	2	0	0.37
M	1990 075647	Deschutes R	Deschutes R	05/20/92	21,308	71,314	46.28	0	0	0	0	0	0	0	0	0	0	1	5	39	1	0	0.22
	1991 075008	Deschutes R	Deschutes R	04/07/93	24,411	24,735	74.36	0	0	0	0	0	0	0	0	0	0	1	16	159	2	0	0.73
	1991 075939	Deschutes R	Deschutes R	04/27/93	20,302	22,020	45.36	0	0	0	0	0	0	0	0	0	0	0	7	46	0	0	0.26
	1991 075948	Deschutes R	Deschutes R	04/27/93	49,402	49,600	45.36	0	0	0	0	0	0	0	0	0	0	0	8	121	1	0	0.26
	1991 075938	Deschutes R	Deschutes R	04/27/93	21,351	21,589	46.28	0	0	0	0	0	0	0	0	0	0	0	4	50	0	0	0.25
	1991 075947	Deschutes R	Deschutes R	04/27/93	48,734	49,127	46.28	0	0	0	0	0	0	0	0	0	0	0	8	115	0	0	0.25
	1991 075940	Deschutes R	Deschutes R	04/27/93	20,425	21,122	52.14	0	0	0	0	0	0	0	0	0	0	1	5	54	0	0	0.29
	1991 075949	Deschutes R	Deschutes R	04/27/93	45,423	47,713	52.14	0	0	0	0	0	0	0	0	0	0	0	10	123	3	0	0.30
	1992 070230	Deschutes R	Deschutes R	04/18/94	26,128	26,580	75.59	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0.01
	1992 070228	Deschutes R	Deschutes R	05/05/94	68,887	70,996	48.77	0	0	0	0	0	0	0	0	0	0	0	73	289	29	0	0.57
	1992 070229	Deschutes R	Deschutes R	05/05/94	67,956	68,998	51.54	0	0	0	0	0	0	0	0	0	0	0	71	300	20	0	0.58
	1992 070227	Deschutes R	Deschutes R	05/05/94	69,753	70,995	52.73	0	0	0	0	0	0	0	2	0	0	1	59	227	12	0	0.44
	1993 070529	Deschutes R	Deschutes R	04/17/95	27,987	29,318	79.58	0	0	0	0	0	0	0	0	0	0	2	5	18	0	0	0.09
	1993 070526	Deschutes R	Deschutes R	05/16/95	67,314	69,446	52.68	0	0	0	0	0	0	0	0	0	0	3	13	61	0	0	0.11
	1993 070527	Deschutes R	Deschutes R	05/16/95	67,037	70,042	52.68	0	0	0	0	0	0	0	0	0	0	0	8	44	0	0	0.08
	1993 070528	Deschutes R	Deschutes R	05/16/95	68,294	70,413	56.63	0	0	2	0	0	0	0	0	0	0	2	15	58	0	0	0.11
	1994 070936	Deschutes R	Deschutes R	04/25/96	25,654	25,680	42.35	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0.04
	1994 070937	Deschutes R	Deschutes R	04/25/96	18,171	19,239	57.34	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0.03
	1994 070938	Deschutes R	Deschutes R	05/09/96	93,755	95,545	41.57	0	0	0	0	0	0	0	0	0	0	0	5	45	0	0	0.05
	1994 070934	Deschutes R	Deschutes R	05/09/96	62,407	63,932	54.58	0	0	0	0	0	0	0	0	0	0	0	8	72	1	0	0.13
	1994 070933	Deschutes R	Deschutes R	05/09/96	60,082	63,445	58.08	0	0	0	0	0	0	0	0	0	0	0	10	49	0	0	0.10
	1994 070935	Deschutes R	Deschutes R	05/09/96	60,427	65,625	62.91	0	0	0	0	0	0	0	0	0	0	0	8	61	0	0	0.11
	1995 091745	Deschutes R	Deschutes R	04/15/97	25,938	26,280	41.61	0	0	0	0	0	0	0	0	0	0	0	17	104	1	0	0.47
	1995 091744	Deschutes R	Deschutes R	04/15/97	14,910	15,061	69.78	0	0	0	0	0	0	0	0	0	0	0	2	72	0	0	0.50
	1995 091746	Deschutes R	Deschutes R	05/12/97	90,474	92,208	41.23	0	0	0	0	3	0	0	0	0	0	0	14	342	2	0	0.40
	1995 091743	Deschutes R	Deschutes R	05/12/97	62,530	63,418	57.42	0	0	0	0	0	0	0	0	0	0	0	3	63	3	0	0.11
	1995 091741	Deschutes R	Deschutes R	05/12/97	61,232	61,732	62.13	0	0	0	0	0	0	0	0	0	0	0	11	204	2	0	0.35
	1995 091742	Deschutes R	Deschutes R	05/12/97	61,102	61,995	63.00	0	0	0	0	0	0	0	0	0	0	0	6	116	0	0	0.20
	1991 075022	Deschutes R	Hood R, W Fk	04/09/93	28,133	28,810	67.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00





Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																			% Surv.
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	
SPRING CHINOOK SALMON (Continued)																						
Umatilla (Continued):																						
H	1991 071452	Carson (WA)	Umatilla R	05/11/92	51,659	108,652	12.32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071450	Carson (WA)	Umatilla R	05/12/92	51,271	109,997	12.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071447	Carson (WA)	Umatilla R	05/12/92	50,047	104,670	12.46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071448	Carson (WA)	Umatilla R	05/12/92	51,707	104,929	12.49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071445	Carson (WA)	Umatilla R	05/12/92	49,498	63,305	14.08	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071444	Carson (WA)	Umatilla R	05/12/92	48,051	63,585	14.54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071443	Carson (WA)	Umatilla R	05/13/92	50,611	97,013	14.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071446	Carson (WA)	Umatilla R	05/13/92	50,045	95,456	14.13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 071543	Carson (WA)	Umatilla R	11/05/92	25,633	50,680	23.26	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.01
H	1991 071542	Carson (WA)	Umatilla R	11/05/92	26,135	50,736	23.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 075739	Carson (WA)	Umatilla R	03/23/93	21,499	50,311	55.31	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0.01
H	1991 075740	Carson (WA)	Umatilla R	03/23/93	20,880	50,109	56.00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 075742	Carson (WA)	Umatilla R	03/24/93	20,307	54,015	52.74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1991 075741	Carson (WA)	Umatilla R	03/24/93	21,157	54,347	54.65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076132	Carson (WA)	Umatilla R	06/01/93	52,893	113,852	15.91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076133	Carson (WA)	Umatilla R	06/01/93	52,335	116,316	16.14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076134	Carson (WA)	Umatilla R	06/01/93	51,963	111,333	16.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076135	Carson (WA)	Umatilla R	06/01/93	51,680	109,473	16.61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076137	Carson (WA)	Umatilla R	06/02/93	52,172	111,103	16.73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 076136	Carson (WA)	Umatilla R	06/02/93	52,588	105,290	16.80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070216	Carson (WA)	Umatilla R	11/16/93	36,102	47,867	21.80	0	0	0	0	0	0	0	0	0	0	1	3	0	0	0.01
H	1992 070159	Carson (WA)	Umatilla R	11/16/93	34,541	49,694	22.34	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00
H	1992 070162	Carson (WA)	Umatilla R	11/16/93	35,467	48,343	22.45	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.03
H	1992 070161	Carson (WA)	Umatilla R	11/17/93	35,657	52,211	21.09	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070160	Carson (WA)	Umatilla R	11/17/93	35,408	49,081	21.70	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0.01
H	1992 070163	Carson (WA)	Umatilla R	11/17/93	36,157	49,318	21.80	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.00
H	1992 070158	Carson (WA)	Umatilla R	11/17/93	34,130	41,244	23.62	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0.01
H	1992 070156	Carson (WA)	Umatilla R	11/17/93	33,999	42,734	24.12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070155	Carson (WA)	Umatilla R	11/17/93	35,710	40,661	24.51	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0.01
H	1992 070157	Carson (WA)	Umatilla R	11/17/93	34,857	39,656	25.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070219	Carson (WA)	Umatilla R	03/21/94	20,971	52,620	51.54	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0.05
H	1992 070217	Carson (WA)	Umatilla R	03/21/94	20,070	51,210	53.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1992 070218	Carson (WA)	Umatilla R	03/21/94	19,920	49,375	55.99	0	0	0	0	0	0	0	0	0	0	0	14	0	0	0.07
H	1992 070220	Carson (WA)	Umatilla R	03/22/94	20,982	51,938	53.99	0	0	0	0	0	0	0	0	0	0	0	24	1	0	0.12
H	1993 070734	Carson (WA)	Umatilla R	05/20/94	49,726	140,255	14.76	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.00
H	1993 070735	Carson (WA)	Umatilla R	05/20/94	52,298	142,237	14.76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1993 070738	Carson (WA)	Umatilla R	05/20/94	51,042	138,665	14.86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
H	1993 070739	Carson (WA)	Umatilla R	05/20/94	52,317	135,990	14.86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	
SPRING CHINOOK SALMON (Continued)																						
Umatilla (Continued):																						
H	1993 070736	Carson (WA)	Umatilla R	05/20/94	52,636	140,227	15.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1993 070737	Carson (WA)	Umatilla R	05/20/94	53,172	142,003	15.05	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
H	1993 070726	Carson (WA)	Umatilla R	11/15/94	35,156	39,551	43.16	0	0	0	0	0	0	0	0	0	0	1	1	9	1	0.03
H	1993 070733	Carson (WA)	Umatilla R	11/15/94	34,220	34,668	47.20	0	0	0	0	0	0	0	0	0	0	0	4	10	1	0.04
H	1993 070728	Carson (WA)	Umatilla R	11/15/94	34,808	38,234	47.69	0	0	0	0	0	0	0	0	0	0	1	4	0	0	0.01
H	1993 070729	Carson (WA)	Umatilla R	11/15/94	35,160	40,383	48.20	0	0	0	0	0	0	0	0	3	0	1	4	0	0	0.02
H	1993 070725	Carson (WA)	Umatilla R	11/15/94	34,824	39,517	48.72	0	0	0	0	0	0	0	0	1	4	4	1	0	0.03	
H	1993 070727	Carson (WA)	Umatilla R	11/15/94	34,790	39,487	49.25	0	0	0	0	0	0	0	0	1	0	5	1	0	0.02	
H	1993 070724	Carson (WA)	Umatilla R	11/15/94	34,124	39,548	50.34	0	0	0	0	0	0	0	0	0	3	4	1	0	0.02	
H	1993 070731	Carson (WA)	Umatilla R	11/15/94	35,750	37,096	58.08	0	0	0	0	0	0	0	0	0	3	13	0	0	0.04	
H	1993 070732	Carson (WA)	Umatilla R	11/15/94	32,251	32,700	61.21	0	0	0	0	0	0	0	0	0	4	9	0	0	0.04	
H	1993 070730	Carson (WA)	Umatilla R	11/15/94	34,915	37,073	62.91	0	0	0	0	0	0	0	0	1	6	9	0	0	0.05	
H	1993 070660	Carson (WA)	Umatilla R	03/13/95	23,607	74,735	32.61	0	0	0	0	0	0	0	3	4	1	33	3	0	0.19	
H	1993 070651	Carson (WA)	Umatilla R	03/13/95	18,864	49,001	54.58	0	0	0	0	0	0	0	0	0	0	2	0	0	0.01	
H	1993 070653	Carson (WA)	Umatilla R	03/13/95	18,175	44,188	55.25	0	0	0	0	0	0	0	2	4	2	0	0	0.04		
H	1993 071454	Carson (WA)	Umatilla R	03/13/95	15,661	40,685	55.93	0	0	0	0	0	0	0	0	1	3	1	0	0.03		
H	1993 070654	Carson (WA)	Umatilla R	03/13/95	19,091	47,846	57.34	0	0	0	0	0	0	0	0	1	0	0	0	0.01		
H	1993 071453	Carson (WA)	Umatilla R	03/13/95	20,315	50,007	60.40	0	0	0	0	0	0	0	0	1	0	1	1	0	0.01	
H	1993 070652	Carson (WA)	Umatilla R	03/13/95	19,052	44,077	61.21	0	0	0	0	0	0	0	0	1	6	0	0	0.04		
H	1993 070661	Carson (WA)	Umatilla R	04/14/95	28,765	74,921	39.75	2	0	0	0	0	0	0	3	3	77	7	0	0.32		
H	1993 070649	Carson (WA)	Umatilla R	04/21/95	22,189	123,257	43.16	0	0	0	0	0	0	0	1	5	67	8	0	0.37		
H	1993 070650	Carson (WA)	Umatilla R	04/21/95	24,088	124,614	44.42	0	0	0	0	0	0	0	0	12	60	12	0	0.35		
H	1994 071028	Carson (WA)	Umatilla R	03/13/96	18,844	45,887	41.96	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1994 071033	Carson (WA)	Umatilla R	03/13/96	19,583	56,709	47.69	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1994 071027	Carson (WA)	Umatilla R	03/13/96	19,622	49,032	50.34	0	0	0	0	0	0	0	0	0	1	0	0	0.01		
H	1994 071029	Carson (WA)	Umatilla R	03/13/96	19,258	49,121	50.34	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1994 071031	Carson (WA)	Umatilla R	03/13/96	20,066	60,137	51.48	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1994 071032	Carson (WA)	Umatilla R	03/13/96	19,874	57,076	52.08	0	0	0	0	0	0	0	0	0	2	0	0	0.01		
H	1994 071030	Carson (WA)	Umatilla R	03/13/96	19,961	60,599	60.40	0	0	0	0	0	0	0	0	0	0	0	0	0.00		
H	1995 091730	Carson (WA)	Umatilla R	03/26/97	19,842	57,668	48.77	0	0	0	0	0	0	0	0	1	97	13	0	0.56		
H	1995 091750	Carson (WA)	Umatilla R	03/26/97	20,289	56,901	48.77	0	0	0	0	0	0	0	1	3	121	19	0	0.71		
H	1995 091749	Carson (WA)	Umatilla R	03/26/97	19,818	56,764	50.96	0	0	0	0	0	0	0	0	5	77	14	0	0.48		
H	1995 091751	Carson (WA)	Umatilla R	03/26/97	20,597	54,550	50.96	0	0	0	0	0	0	0	1	0	147	18	0	0.81		
Willamette:																						
H	1986 074714	M Willamette R	Willamette R, MF	08/12/87	28,304	29,453	68.72	13	11	0	0	4	0	0	0	0	0	23	142	88	1	1.00
H	1986 074716	M Willamette R	Willamette R, MF	09/14/87	24,492	32,815	35.44	0	0	0	0	0	0	0	0	0	8	11	15	0	0.14	
H	1986 073853	M Willamette R	Willamette R, MF	10/06/87	10,079	10,380	47.23	3	0	0	0	0	0	0	0	6	33	8	4	0.54		





Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.		
stock, (source H, N, M),		Release Date	Number Released		Size (gm)	Oregon Areas												Freshwater Recoveries						
brood, tagcode	Hatchery		Release Site	Ad+CWT		Total	AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+
SPRING CHINOOK SALMON (Continued)																								
Willamette (Continued):																								
H	1992 070132	M Willamette R	Willamette R, MF	02/28/94	24,900	51,136	24.12	3	7	0	0	0	0	0	0	0	0	0	0	17	11	0	0.15	
H	1992 070128	M Willamette R	Willamette R, MF	02/28/94	20,521	41,760	26.06	9	3	0	0	0	0	0	0	0	0	0	0	10	12	0	0.17	
H	1992 070129	M Willamette R	Willamette R, MF	02/28/94	28,590	50,460	26.06	3	5	0	0	0	0	0	0	0	0	0	0	2	14	12	0	0.13
H	1992 070130	M Willamette R	Willamette R, MF	02/28/94	22,588	49,078	26.52	0	0	0	0	0	0	0	0	0	0	0	1	1	11	19	0	0.14
H	1992 076326	M Willamette R	Willamette R, MF	02/28/94	29,028	116,110	26.68	0	0	0	0	0	0	0	0	0	0	0	1	25	23	0	0.17	
H	1992 070131	M Willamette R	Willamette R, MF	02/28/94	24,113	53,235	26.84	0	0	0	0	0	0	0	0	0	0	0	1	18	21	0	0.17	
H	1992 076327	M Willamette R	Willamette R, MF	02/28/94	25,589	108,378	27.99	5	0	0	0	0	0	0	0	0	0	1	0	10	14	0	0.12	
H	1992 076323	M Willamette R	Willamette R, MF	02/28/94	26,020	38,955	28.52	6	0	0	0	0	0	0	0	0	0	1	1	32	18	0	0.25	
H	1992 076322	M Willamette R	Willamette R, MF	02/28/94	24,039	36,524	30.23	0	2	0	0	0	0	0	0	0	0	1	0	15	20	0	0.16	
H	1992 076324	M Willamette R	Willamette R, MF	02/28/94	25,909	36,704	30.64	5	0	0	0	0	0	0	0	0	0	4	1	15	28	2	0.21	
H	1992 076325	M Willamette R	Willamette R, MF	02/28/94	25,142	33,082	32.63	8	0	0	0	0	0	0	0	0	0	0	0	30	27	0	0.26	
H	1992 076337	M Willamette R	Willamette R, MF	02/28/94	14,494	17,550	33.59	5	0	0	0	0	0	0	0	0	0	3	0	13	11	0	0.22	
H	1992 076336	M Willamette R	Willamette R, MF	02/28/94	14,211	17,550	34.89	2	0	0	0	0	0	0	0	0	0	2	0	15	12	0	0.22	
H	1992 070133	M Willamette R	Willamette R, MF	02/28/94	27,082	154,364	58.90	0	3	0	0	0	0	0	0	0	0	20	2	120	71	0	0.80	
H	1992 070134	M Willamette R	Willamette R, MF	02/28/94	26,975	154,364	58.90	9	15	0	0	0	0	0	0	0	0	16	3	84	59	0	0.69	
H	1993 070563	M Willamette R	Willamette R, MF	02/08/95	23,817	378,256	56.63	15	0	0	0	0	0	0	3	0	0	0	3	108	72	0	0.84	
H	1993 070616	M Willamette R	Willamette R, MF	03/11/95	25,893	809,156	46.71	1	7	0	0	0	0	0	0	0	0	0	1	41	37	3	0.35	
H	1994 070856	M Willamette R	Willamette R, MF	02/07/96	28,011	776,465	55.93	6	0	0	0	0	0	0	0	0	0	0	0	23	13	0	0.15	
H	1994 070855	M Willamette R	Willamette R, MF	03/19/96	26,510	541,025	54.58	14	0	0	0	0	0	0	0	0	0	0	2	125	71	0	0.80	
H	1995 071254	M Willamette R	Willamette R, MF	02/28/97	31,655	413,739	50.96	0	0	0	0	0	0	0	0	0	0	0	1	11	15	0	0.09	
H	1995 071255	M Willamette R	Willamette R, MF	02/28/97	30,412	218,626	52.74	14	0	0	0	0	0	0	0	0	0	0	1	48	49	0	0.37	
H	1994 070955	M Willamette R	Willamette R	11/28/95	28,349	172,858	68.62	20	0	0	0	0	0	0	0	0	0	0	1	27	27	0	0.26	
H	1995 091715	M Willamette R	Willamette R	11/09/96	30,888	86,216	53.30	5	0	0	0	0	0	0	0	0	0	0	1	30	23	0	0.19	
SUMMER CHINOOK SALMON																								
Bonneville:																								
M	1986 073709	Columbia (URB)	Tanner Cr	11/05/87	9,648	22,422	35.44	2	3	0	0	0	2	0	0	4	0	0	0	16	5	0	0.33	
M	1986 073710	Columbia (URB)	Tanner Cr	11/05/87	9,251	21,500	35.44	2	0	24	0	0	0	0	0	0	0	0	0	2	5	0	0.36	
M	1986 073711	Columbia (URB)	Tanner Cr	11/05/87	9,693	22,529	35.44	0	0	0	0	0	0	0	0	0	0	0	0	6	4	0	0.10	
M	1986 073712	Columbia (URB)	Tanner Cr	11/05/87	9,767	22,702	35.44	2	5	13	0	0	0	0	4	0	0	0	0	7	1	0	0.33	
M	1986 073713	Columbia (URB)	Tanner Cr	11/05/87	9,856	22,908	35.44	7	3	9	0	0	1	0	0	10	0	0	1	8	3	0	0.43	
M	1986 073714	Columbia (URB)	Tanner Cr	11/05/87	10,413	63,616	35.97	1	3	0	0	0	2	0	0	0	0	0	1	12	2	0	0.20	
M	1986 073715	Columbia (URB)	Tanner Cr	11/05/87	10,145	61,979	35.97	9	2	14	0	0	0	0	0	0	0	0	2	3	8	1	0.38	
M	1986 073716	Columbia (URB)	Tanner Cr	11/05/87	10,459	63,897	35.97	6	0	0	3	0	0	0	0	0	0	0	0	5	0	0	0.13	
M	1986 073717	Columbia (URB)	Tanner Cr	11/05/87	10,689	65,302	35.97	1	5	5	0	0	0	0	0	0	0	0	0	6	4	0	0.20	
M	1986 073718	Columbia (URB)	Tanner Cr	11/05/87	10,535	64,363	35.97	0	0	0	0	0	0	0	0	0	0	0	5	4	3	0	0.11	









Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																							
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries					% Surv.					
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5	6+			
COHO SALMON (Continued)																											
Cle Elum Acclimation:																											
H	1997 092426	Tanner Cr	Yakima R	05/17/99	26,593	204,017	26.68	0	0	0	0	0	0	11	5	0	12	5	0	0	1	51	0	0	0	0.32	
Jack Creek Acclimation:																											
H	1997 092427	Tanner Cr	Jack Cr (Yakima)	05/17/99	25,864	247,724	26.68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00	
Rosa Acclimation:																											
H	1995 071245	Clackamas R	Yakima R	05/15/97	25,046	33,802	38.77	0	0	0	0	0	0	19	2	0	0	0	0	0	0	0	31	0	0	0	0.21
CEDC Fisheries - Blind Slough:																											
H	1994 075901	Clackamas R	Blind Slough	05/06/96	24,942	209,761	50.34	0	0	0	0	0	5	0	0	0	2	0	0	24	293	0	0	0	0	1.30	
H	1993 071545	Tanner Cr	Blind Slough	05/12/95	26,258	140,267	50.91	0	0	10	0	0	19	8	0	0	0	0	4	1	470	0	0	0	0	1.95	
H	1995 091818	Tanner Cr	Blind Slough	05/05/97	25,104	196,963	31.50	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0.07	
H	1996 092305	Tanner Cr	Blind Slough	05/01/98	24,607	144,958	39.79	0	0	0	0	0	4	2	0	3	1	0	0	12	386	0	0	0	0	1.66	
H	1997 092528	Tanner Cr	Blind Slough	04/28/99	26,072	197,089	40.13	0	0	0	0	0	13	3	1	8	3	0	0	39	457	0	0	0	0	2.01	
CEDC Fisheries - South Fork Klaskanine:																											
H	1988 075128	Klaskanine R	Klaskanine R, SF	05/13/90	27,126	779,320	38.76	0	2	47	0	1	68	44	38	150	197	28	117	142	728	0	0	0	0	5.76	
H	1990 075721	Klaskanine R	Klaskanine R, SF	04/16/92	26,387	653,350	40.10	0	0	12	0	0	130	31	9	28	23	6	43	71	462	1	0	0	0	3.09	
H	1991 071428	Klaskanine R	Klaskanine R, SF	04/30/93	26,817	736,929	32.39	0	0	0	0	0	0	0	0	0	0	0	0	1	169	0	0	0	0	0.63	
H	1992 076145	Klaskanine R	Klaskanine R, SF	04/04/94	25,978	538,994	37.79	0	0	0	0	0	26	6	0	1	0	0	0	23	105	0	0	0	0	0.62	
H	1993 070356	Klaskanine R	Klaskanine R, SF	04/10/95	23,160	433,674	43.16	0	0	0	0	0	8	5	0	0	0	0	0	65	146	0	0	0	0	0.97	
H	1994 070925	Klaskanine R	Klaskanine R, SF	04/14/96	25,979	443,183	42.75	0	0	0	0	0	0	0	0	0	0	0	0	46	84	0	0	0	0	0.50	
H	1995 091824	Klaskanine R	Klaskanine R, SF	05/12/97	28,284	621,932	35.71	0	0	0	0	0	11	4	0	0	0	0	0	16	457	0	0	0	0	1.73	
H	1996 092321	Klaskanine R	Klaskanine R, SF	04/29/98	26,787	550,427	27.00	0	0	0	0	0	8	6	0	4	0	0	0	11	235	0	0	0	0	0.99	
H	1997 092428	Klaskanine R	Klaskanine R, SF	04/21/99	19,622	429,652	34.10	0	0	0	0	0	2	1	1	0	6	0	0	2	89	0	0	0	0	0.51	
H	1989 075548	Sandy R	Klaskanine R, SF	05/08/91	26,441	785,102	35.43	0	0	0	0	0	10	10	1	24	19	0	0	6	72	0	0	0	0	0.54	
CEDC Fisheries - Tongue Point:																											
H	1994 071241	Clackamas R	Tongue Point	05/06/96	23,942	190,032	53.93	0	0	0	0	0	5	0	0	0	0	0	0	20	191	0	0	0	0	0.90	
H	1993 075329	Tanner Cr	Tongue Point	05/12/95	26,426	130,623	52.08	0	0	13	0	10	30	9	0	0	0	4	0	5	746	0	0	0	0	3.09	
H	1995 071336	Tanner Cr	Tongue Point	05/05/97	26,174	430,221	32.63	0	0	0	0	0	4	0	0	0	0	0	0	0	135	0	0	0	0	0.53	
H	1996 092306	Tanner Cr	Tongue Point	05/01/98	18,355	119,611	40.50	0	0	0	0	0	18	5	2	6	6	0	0	14	684	0	0	0	0	4.00	
H	1997 092529	Tanner Cr	Tongue Point	04/28/99	26,269	204,143	39.78	0	0	0	0	0	9	7	4	11	3	0	0	42	342	0	0	0	0	1.59	
CEDC Fisheries - Youngs Bay:																											
H	1988 074307	Clackamas R	Youngs R	05/18/90	23,040	191,286	34.89	0	0	24	0	6	109	46	30	133	161	30	151	96	1130	0	0	0	0	8.32	
H	1988 074308	Clackamas R	Youngs R	05/18/90	24,665	197,191	34.89	0	0	30	0	0	70	38	46	88	160	34	152	120	1234	0	0	0	0	8.00	
H	1989 075559	Clackamas R	Youngs R	04/18/91	25,853	565,011	29.45	0	0	4	0	0	19	9	6	33	30	3	6	32	115	0	0	0	0	0.99	

















Appendix Table A. Continued.

STOCK GROUP,			Ocean Catch																			%	
stock, (source H, N, M),		Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries						
brood, tagcode	Hatchery		Release Site	Ad+CWT		Total	AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4	5	6+
SUMMER STEELHEAD (Continued)																							
Irrigon (Continued):																							
	1995 071161	Wallowa R	Big Canyon Cr	04/17/96	24,771	25,522	85.58	0	0	0	0	0	0	0	0	0	0	91	61	0	0	0	0.61
	1995 071162	Wallowa R	Big Canyon Cr	04/17/96	25,294	25,448	85.58	0	0	0	0	0	0	0	0	0	0	102	52	0	0	0	0.61
	1995 071159	Wallowa R	Big Canyon Cr	04/17/96	27,223	111,419	96.51	0	0	0	0	0	0	0	0	0	0	105	47	0	0	0	0.56
	1995 071160	Wallowa R	Big Canyon Cr	04/17/96	27,289	111,418	96.51	0	0	0	0	0	0	0	0	0	0	155	36	1	0	0	0.70
	1996 075330	Wallowa R	Big Canyon Cr	04/08/97	25,227	53,796	82.47	0	0	0	0	0	0	0	0	0	0	42	8	0	0	0	0.20
	1996 091825	Wallowa R	Big Canyon Cr	04/08/97	26,766	53,795	82.47	0	0	0	0	0	0	0	0	0	0	43	6	1	0	0	0.19
	1996 091826	Wallowa R	Big Canyon Cr	04/23/97	26,571	54,773	88.94	0	0	0	0	0	0	0	0	0	0	67	14	0	0	0	0.30
	1996 091827	Wallowa R	Big Canyon Cr	04/23/97	26,844	54,771	88.94	0	0	0	0	0	0	0	0	0	0	64	4	0	0	0	0.25
Oak Springs:																							
H	1987 073859	Umatilla R	Umatilla R	04/19/88	9,829	10,187	61.29	0	0	0	0	0	0	0	0	0	0	24	32	0	0	0	0.57
H	1987 073860	Umatilla R	Umatilla R	04/19/88	9,721	10,075	61.29	0	0	0	0	0	0	0	0	0	0	34	46	0	0	0	0.82
H	1987 073861	Umatilla R	Umatilla R	04/19/88	9,925	10,287	61.29	0	0	0	0	0	0	0	0	0	0	38	32	0	0	0	0.71
H	1987 073856	Umatilla R	Umatilla R	04/19/88	9,689	10,423	69.77	0	2	0	0	0	0	0	0	0	0	36	34	0	0	0	0.74
H	1987 073857	Umatilla R	Umatilla R	04/19/88	9,455	10,171	69.77	0	0	0	0	0	0	0	0	0	0	32	13	3	0	0	0.51
H	1987 073858	Umatilla R	Umatilla R	04/19/88	9,448	10,163	69.77	0	0	0	0	0	0	0	0	0	0	9	21	0	0	0	0.32
H	1988 074720	Umatilla R	Umatilla R	05/18/89	8,784	9,949	68.71	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0.06
H	1988 074723	Umatilla R	Umatilla R	05/18/89	8,789	9,954	68.71	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.02
H	1988 074724	Umatilla R	Umatilla R	05/18/89	8,784	9,949	68.71	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0.03
H	1988 074715	Umatilla R	Umatilla R	05/18/89	8,800	9,873	82.46	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	0.08
H	1988 074717	Umatilla R	Umatilla R	05/18/89	8,791	9,864	82.46	0	0	0	0	0	0	0	0	0	0	1	9	0	0	0	0.11
H	1988 074718	Umatilla R	Umatilla R	05/18/89	8,778	9,849	82.46	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0.02
N	1989 075212	Umatilla R	Meacham Cr	05/07/90	9,331	10,239	76.87	0	0	0	0	0	0	0	0	0	0	57	23	0	0	0	0.86
N	1989 075213	Umatilla R	Meacham Cr	05/07/90	9,133	10,022	76.87	0	0	0	0	0	0	0	0	0	0	63	28	0	0	0	1.00
N	1989 075214	Umatilla R	Meacham Cr	05/07/90	9,080	9,964	76.87	0	0	0	0	0	0	0	0	0	0	45	38	0	0	0	0.91
N	1989 075215	Umatilla R	Meacham Cr	05/11/90	9,511	9,830	82.46	0	0	0	0	0	0	0	0	0	0	67	27	0	0	0	0.99
N	1989 075216	Umatilla R	Meacham Cr	05/11/90	9,525	9,845	82.46	0	0	0	0	0	0	0	0	0	0	63	39	1	0	0	1.08
N	1989 075217	Umatilla R	Meacham Cr	05/11/90	9,454	9,771	82.46	0	0	0	0	0	0	0	0	0	0	56	24	0	0	0	0.85
H	1990 075340	Umatilla R	Meacham Cr	05/02/91	9,835	10,086	73.15	0	0	0	0	0	0	0	0	0	0	34	43	6	0	0	0.84
H	1990 075341	Umatilla R	Meacham Cr	05/02/91	9,819	10,070	73.15	0	0	0	0	0	0	0	0	0	0	32	35	1	0	0	0.69
H	1990 075342	Umatilla R	Meacham Cr	05/02/91	9,814	10,065	73.15	0	0	0	0	0	0	0	0	0	0	43	48	0	2	0	0.95
H	1990 075343	Umatilla R	Meacham Cr	05/03/91	9,432	9,754	52.13	0	0	0	0	0	0	0	0	0	0	44	35	0	0	0	0.84
H	1990 075344	Umatilla R	Meacham Cr	05/03/91	9,467	9,791	52.13	0	0	0	0	0	0	0	0	0	0	30	33	1	0	0	0.68
H	1990 075345	Umatilla R	Meacham Cr	05/03/91	9,458	9,781	52.13	0	0	0	0	0	0	0	0	0	0	40	38	0	0	0	0.82

Appendix Table A. Continued.

STOCK GROUP,				Ocean Catch																		% Surv.	
stock, (source H, N, M),		Release Site	Release Date	Number Released		Size (gm)	Oregon Areas										Freshwater Recoveries						
brood, tagcode	Hatchery			Ad+CWT	Total		AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5
SUMMER STEELHEAD (Continued)																							
Umatilla:																							
N	1991 073759	Umatilla R	Umatilla R	03/29/92	10,394	22,474	78.19	0	0	0	0	0	0	0	0	0	0	15	8	0	0	0	0.22
N	1991 073862	Umatilla R	Umatilla R	03/29/92	10,594	22,902	78.19	0	0	0	0	0	0	0	0	0	0	2	12	0	0	0	0.13
N	1991 074127	Umatilla R	Umatilla R	03/29/92	10,203	22,059	78.19	0	0	0	0	0	0	0	0	0	0	5	22	0	0	0	0.26
N	1991 075841	Umatilla R	Umatilla R	04/30/92	10,108	22,262	90.70	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0.02
N	1991 075842	Umatilla R	Umatilla R	04/30/92	9,498	21,365	90.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00
N	1991 075843	Umatilla R	Umatilla R	04/30/92	9,747	20,923	90.70	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0.04
N	1991 075838	Umatilla R	Umatilla R	05/01/92	10,562	22,469	82.46	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.01
N	1991 075839	Umatilla R	Umatilla R	05/01/92	10,275	22,662	82.46	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.01
N	1991 075840	Umatilla R	Umatilla R	05/01/92	10,105	22,288	82.46	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.01
	1992 076055	Umatilla R	Umatilla R	04/16/93	10,031	27,854	80.98	0	1	0	0	0	0	0	0	0	0	39	17	0	0	0	0.57
	1992 076056	Umatilla R	Umatilla R	04/16/93	9,418	10,021	80.98	0	0	0	0	0	0	0	0	0	0	29	27	0	0	0	0.59
	1992 076057	Umatilla R	Umatilla R	04/16/93	9,643	10,104	80.98	0	0	0	0	0	0	0	0	0	0	36	23	0	0	0	0.61
	1992 076058	Umatilla R	Umatilla R	04/18/93	10,194	24,612	100.8	0	0	0	0	0	0	0	0	0	0	39	29	0	0	0	0.67
	1992 076059	Umatilla R	Umatilla R	04/18/93	9,792	10,173	100.8	0	0	0	0	0	0	0	0	0	0	23	20	0	0	0	0.44
	1992 076060	Umatilla R	Umatilla R	04/18/93	9,440	10,039	100.8	0	0	0	0	0	0	0	0	0	0	48	25	0	0	0	0.77
	1992 076052	Umatilla R	Umatilla R	05/13/93	13,117	43,767	74.35	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	0.06
	1992 076053	Umatilla R	Umatilla R	05/13/93	11,410	11,691	74.35	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0.10
	1992 076054	Umatilla R	Umatilla R	05/13/93	9,907	10,007	74.35	0	0	0	0	0	0	0	0	0	0	1	7	0	0	0	0.08
	1993 070143	Umatilla R	Umatilla R	04/11/94	10,471	26,481	92.57	0	0	0	0	0	0	0	0	0	0	53	12	0	0	0	0.62
	1993 070144	Umatilla R	Umatilla R	04/11/94	9,651	24,922	92.57	0	0	0	0	0	0	0	0	0	0	38	35	0	0	0	0.76
	1993 070141	Umatilla R	Umatilla R	04/14/94	9,952	24,692	88.94	0	0	0	0	0	0	0	0	0	0	22	13	0	0	0	0.35
	1993 070142	Umatilla R	Umatilla R	04/14/94	9,965	24,906	88.94	0	0	0	0	0	0	0	0	0	0	45	19	0	0	0	0.64
	1993 070139	Umatilla R	Umatilla R	05/12/94	8,595	26,411	87.23	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0.06
	1993 070140	Umatilla R	Umatilla R	05/12/94	8,400	25,686	87.23	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.01
	1994 070657	Umatilla R	Umatilla R	04/11/95	19,290	48,539	81.00	0	0	0	0	0	0	0	0	0	0	163	54	0	0	0	1.12
	1994 070656	Umatilla R	Umatilla R	04/13/95	18,812	49,983	96.51	0	0	0	0	0	0	0	0	0	0	157	133	3	0	0	1.56
	1994 070655	Umatilla R	Umatilla R	05/12/95	19,782	47,941	82.17	0	0	0	0	0	0	0	0	0	0	33	15	0	0	0	0.24
	1995 071035	Umatilla R	Umatilla R	04/12/96	19,742	47,543	88.94	0	0	0	0	0	0	0	0	0	0	70	58	0	0	0	0.65
	1995 071036	Umatilla R	Umatilla R	04/26/96	21,205	49,377	85.58	0	0	0	0	0	0	0	0	0	0	33	26	4	0	0	0.30
	1995 071034	Umatilla R	Umatilla R	05/09/96	20,633	49,783	88.94	0	0	0	0	0	0	0	0	0	0	5	25	0	0	0	0.15
	1996 091835	Umatilla R	Umatilla R	04/10/97	19,531	41,555	84.00	0	0	0	0	0	0	0	0	0	0	48	7	1	0	0	0.29
	1996 091836	Umatilla R	Umatilla R	04/11/97	19,103	46,788	98.60	0	0	0	0	0	0	0	0	0	0	89	7	0	0	0	0.50
	1996 091837	Umatilla R	Umatilla R	05/15/97	20,065	48,944	92.57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00

Appendix Table A. Concluded.

STOCK GROUP,			Ocean Catch																			%	
stock, (source H, N, M),		Release Date	Number Released		Size (gm)	Oregon Areas											Freshwater Recoveries						
brood, tagcode	Hatchery		Release Site	Ad+CWT		Total	AK	NCBC	WCVI	GST	PS	WA	1&2	3	4	5	6&7	CA	2	3	4		5
WINTER STEELHEAD																							
Oak Springs:																							
1993 070538	Hood R	Hood R, E Fk	04/13/94	5,748	6,445	84.00	0	0	0	0	0	0	0	0	0	0	0	1	12	4	0	0	0.30
1993 070539	Hood R	Hood R, E Fk	04/13/94	6,478	6,521	84.00	0	0	0	0	0	0	0	0	0	0	0	1	19	7	0	0	0.42
1993 070536	Hood R	Hood R, E Fk	04/13/94	6,821	6,863	100.8	0	0	0	0	0	0	0	0	0	0	0	2	11	7	0	0	0.29
1993 070537	Hood R	Hood R, E Fk	04/13/94	6,170	6,189	100.8	0	0	0	0	0	0	0	0	0	0	0	2	10	14	0	0	0.42
1994 070917	Hood R	Hood R, E Fk	04/19/95	9,654	11,148	79.58	0	0	0	0	0	0	0	0	0	0	0	0	23	4	0	0	0.28
1994 070918	Hood R	Hood R, E Fk	04/19/95	9,387	10,840	79.58	0	0	0	0	0	0	0	0	0	0	0	0	34	1	0	0	0.37
1994 070916	Hood R	Hood R, E Fk	04/19/95	9,935	10,371	88.94	0	0	0	0	0	0	0	0	0	0	0	1	33	6	0	0	0.40
1994 070863	Hood R	Hood R, E Fk	04/20/95	10,096	10,539	88.94	0	0	0	0	0	0	0	0	0	0	0	4	29	13	0	0	0.46
1995 071131	Hood R	Hood R, E Fk	05/08/96	23,995	23,995	88.94	0	0	0	0	0	0	0	0	0	0	0	3	9	5	0	0	0.07
1995 071132	Hood R	Hood R, E Fk	05/08/96	26,092	26,871	90.72	0	0	0	0	0	0	0	0	0	0	0	5	5	0	0	0	0.04

APPENDIX B

Annual Report

Project Title:

Evaluate the Technical and Biological Feasibility of Using Visual Implant Elastomer (VIE) Tags to Mark Large Numbers of Juvenile Coho Salmon (*Oncorhynchus kisutch*)

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### ABSTRACT

In an effort to evaluate the Visual Implant Elastomer (VIE) tag as a tool to mass mark juvenile salmonids, we marked groups of juvenile coho at Sandy Fish Hatchery in July of 1998, 1999 and 2000, for release the following May. Fish received an initial Elastomer tag in the lower right jaw above the sinus cavity which leads up to the operculum. Initial VIE tag retention was determined at the time of coded wire tagging (CWTing) in November of each year. If the VIE tag was not easily detected with the naked eye, the fish were re-tagged with a secondary VIE tag of an alternate color to the lower left jaw. Overall VIE tag retention rates were determined the following January. Average tagging rates ranged from less than 300 (during 1998) to nearly 2,400 (during 2000) fish per employee and day. Pre-release tag retention ranged from 95 percent (2001 release) to 99 percent (2000 release). Tag retention in coho salmon returning to the hatchery ranged from 0.0 to 0.2 percent for adults, and from 7.1 to 70.6 percent in precocious males.

### ACKNOWLEDGMENTS

We thank Ken Bourne, Sandy Fish Hatchery Manager, and his staff for their help during marking and sampling. We also thank Northwest Marine Technology (NMT), for their cooperation and expertise..

### INTRODUCTION

Based on the need to distinguish hatchery reared from wild coho salmon as outlined by the Biological Opinion of the National Marine Fisheries Service (NMFS) and ODFW Wild Fish Management and Native Fish Conservation Plan strategies, and the need to differentiate between stocks contributing to mixed stock fisheries and hatchery broodstock collections, ODFW is seeking viable fish marking techniques, that provide for less intrusive, external marks. Presently, fish are marked by excising single fins or fin combinations. Some fin marks are undesirable, either for their contribution to lower survival rates or for the difficulty in long term recognition by anglers, etc. The adipose fin mark has also served as the external indicator for the presence of CWTs (PSC 1995).

The objective of this study is to identify and evaluate alternative marks that are easy to apply, do not harm the fish, and are recognizable in returning adults.

### METHODS AND MATERIALS

In July of 1998, 1999 and 2000, we set up a standard CWT marking trailer with 6 work stations for hand held VIE injectors powered by compressed air. Each station had an injector, power supply, hand piece, and associated air hoses. The mixing packages for the fluorescent dye contained 6CC of colored Elastomer, a jar of curing agent, a 10CC syringe, and a stir stick. After mixing the Elastomer with the curing agent, the material was loaded into several 0.5CC injecting syringes. The system is designed to achieve a mark similar in volume to NMT's coded wire tags, about 0.05 microliter (NMT 1998). The injecting syringes that were not used immediately were kept on ice or in a commercial freezer to prevent premature curing of the Elastomer material.

The initial VIE tag was injected into the lower right jaw, just above the sinus cavity which leads up to the operculum. As the Elastomer began to cure and started to set in the injection syringes, the needles were replaced. The Elastomer syringes were replaced every 5 to 90 minutes

The time period from mixing the Elastomer material with the curing agent until the point of set up is temperature dependent. If put on ice or frozen it will stay workable for up to 24 hours. At room temperature it will begin to set up in 30 to 60 minutes.

The fish were VIE tagged at a size of approximately 60 fish per pound or an average of 8.8 centimeters in fork length. During this initial VIE tagging session, if an injected VIE tag was not administered well enough to be easily visible, the fish was tagged a second time, in the same location as the first tag.

In November of 1998, 1999 and 2000, approximately four months after the initial VIE tagging, the fish were coded wire tagged, and at the same time examined for the presence or absence of the original VIE tag. If the VIE tag was not visible with the naked eye, the fish were re-tagged with a secondary VIE tag of an alternate color to the opposite side lower jaw.

Some of the fish receiving a secondary VIE tag were exposed to ultra violet (UV) light at which time remnant original VIE tags were detected. Therefore, the total number of applied secondary VIE tags does not reflect initial VIE tag loss accurately.

In order to minimize secondary VIE tag loss we replaced the Elastomer syringes in the injectors more frequently than was done during the original VIE tagging.

During fish processing and spawning of adult and precocious males, the fish are visually inspected for a VIE mark. If no detection occurred, a black light was used to illuminate any remnant VIE mark. All fish were then passed through an R8000 series tunnel detector to sample for the presence of a CWT. Snouts containing a CWT were sent to the central CWT processing laboratory in Clackamas Oregon for decoding.

## RESULTS

We determined an overall pre-release VIE mark retention of 95 percent in January of 2001. A total of 70,665 VIE marked (CWT tagcode 09-27/48) coho were released in May of 2001. Of the 70,665 fish released, 56,190 had green right jaw VIE marks and 14,475 had red left jaw VIE marks.

Adults and precocious males were collected at Sandy Hatchery from September 15 through November 30, 2001. Fish that were released as VIE tagged juveniles were



identified by CWT recoveries for tagcodes 09-27/47 and 09-27/48. Table 1 shows a total of 1,146 adults and 14 precocious males recovered with these tagcodes, however, none of the sampled adult coho had retained a VIE mark and only one precocious male returned with a red VIE mark on the lower left jaw.

Table 1: 1999 to 2001 VIE Mark Recovery Rates at Sandy Fish Hatchery.

Return Year	Adults		Precocious Males	
	Total # / VIE #	%VIE Marked	Total # / VIE #	%VIE Marked
1999	N.A.	N.A.	17 / 12	70.59
2000	606 / 1	0.17	36 / 13	36.11
2001	1,146 / 0	0.00	14 / 1	7.14

#### CONCLUSION AND DISCUSSION

While marking rates improved over time with experienced employees, pre-release tag retention varies widely for the three releases. Tag retention in returning fish is better for precocious males than for adults. The final adult return is expected for the fall of 2002.

#### REFERENCES

- Pacific Salmon Commission (PSC). 1995. Ad-Hoc Selective Fishery Evaluation Committee. Selective Fishery Evaluation.
- Northwest Marine Technology (NMT). 1998. Northwest Marine Technology Instruction Manual for Elastomer Tag Air Driven Injector System.