

**Fishery Data Series No. 92-53**

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**Ward Creek Roadside Coho Salmon Study,  
Ketchikan, Alaska, July-September, 1991**

by

**Dennis Hubartt**

November 1992

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Alaska Department of Fish and Game

Division of Sport Fish



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#### ABSTRACT

Eighty-six coho salmon *Oncorhynchus kisutch* were sampled from the Ward Creek sport fishery between 1 July and 30 September 1991 by sampling a constant number of hours during each 14-day period. This sample was used to estimate the proportion of hatchery fish harvested in the fishery (0.81 with a standard error of 0.064). This proportion was then applied to the estimated sport harvest of coho salmon at Ward Creek from the 1991 statewide harvest survey (313) to produce an estimated total harvest of hatchery coho salmon of 254 with a standard error of 152.

KEY WORDS: Southeast Alaska, Ketchikan, coho salmon, *Oncorhynchus kisutch*, angler interviews, estimated harvest, hatchery contributions.

## INTRODUCTION

Hatchery-reared coho salmon *Oncorhynchus kisutch* from Ketchikan Creek brood stocks were planted in the Ward Creek system on an annual basis from 1981 through 1984. Beginning in 1987, summer-run coho from Reflection Lake were planted in Ward Lake. The dates of stocking, life stage, tag codes, number marked with valid coded-wire-tags (CWT's), number marked with adipose clips only, number unmarked, and total number planted for recent plants are as follows (Johnson and Longwill, 1991):

Release date	Life stage	Tag code	Valid tags	Adclips only	Unmarked	Total
12/22/87	presmolt	4-27-53	20,903	340	0	21,243
01/06/89	presmolt	4-30-23	21,134	257	34,272	55,663
01/11/90	presmolt	4-33-25	8,481	551	0	9,032
01/11/90	presmolt	4-33-26	8,308	616	0	8,924
01/11/90	presmolt	4-33-27	9,402	371	4,730	14,503
01/11/90	presmolt	4-33-28	10,236	630	10,599	21,465
11/15/90	presmolt	4-35-20	10,431	213	2,031	12,675
11/15/90	presmolt	4-35-21	10,609	0	2,064	12,673
11/15/90	presmolt	4-35-22	10,704	43	2,358	13,105

According to projections provided by the Alaska Department of Fish and Game (ADF&G) Fisheries Rehabilitation, Enhancement and Development (FRED) Division, approximately 2,400 adult coho from the 01/11/90 release were expected to return to the Ward Creek system in 1991 (Carol Denton, Alaska Department of Fish and Game, Ketchikan, personal communication). According to the release data above, 71.57% of the returning fish would be marked with an adipose clip, and 94.38% of the clipped fish were CWT'ed. Prior to this project, there was no evaluation of this enhancement program.

General observations by Department staff during recent years indicated a developing fishery targeted on coho salmon returning to the Ward Creek system. Although no quantitative studies of the coho salmon fishery in the Ward Creek system have been conducted, staff of the ADF&G Sport Fish Division have observed activities in the intertidal area of this system on a regular basis. Prior to 1989, very little fishing was observed in this area. During the late summer and fall of 1989, as many as a half-dozen anglers were observed fishing the intertidal area at one time; this number increased to more than a dozen anglers during the same period in 1990. Assuming a return of 550 wild coho salmon and an exploitation rate of 20%, a total of about 600 coho salmon were expected in the harvest in 1991.

This study evaluates the success of the coho salmon enhancement effort in January 1990 at Ward Creek.

The objectives of the study were:

- (1) to estimate the proportion of coho salmon harvested in the sport fishery at Ward Creek between 1 July and 30 September which are hatchery produced; and

- (2) to estimate the contribution of hatchery-produced coho salmon to the sport fishery at Ward Creek between 1 July and 30 September.

Objective (1) was achieved through a sampling program. The estimated proportion was multiplied by the coho salmon harvest estimate from the Statewide Harvest Survey (Mills 1992) for Ward Creek, to estimate the contribution in numbers of fish (objective 2).

## METHODS

### Study Design

The 1991 Ward Creek roadside coho study included the Ward Creek system from the intertidal area to the swinging bridge site (Figure 1). During each sample period, a technician moved through the study area in a vehicle and on foot to contact anglers and examine their coho salmon harvest for adipose fin clips (indicating the fish was planted by a hatchery).

We assumed that the proportion of coho salmon harvested in the Ward system which were adipose clipped did not vary by time of day or type of day (weekday versus weekend), but might vary by season (a 14-day period). Therefore, an unbiased estimate of the proportion of fish harvested which were hatchery-produced fish was obtained by sampling a constant proportion of the harvest in each "season."

Sampling a constant number of comparable (popular, or fished) hours during each 14-day period satisfies the requirement for proportional sampling. In order to reduce the total number of hours required to obtain the necessary samples, a constant number of the most popular morning, midday and evening hours to fish were sampled.

In order to satisfy objective (1), 104 fish were proportionally sampled (Appendix A), which corresponded to sampling  $\approx 17.5\%$  of the expected harvest. Since fishing is concentrated at certain times of the day, less than 20 hours per week ( $0.175 \times 16 \text{ hr/day} \times 7 \text{ day/wk}$ ) of sampling was required. To meet this sample size, a schedule for sampling 37.5 hours per week during peak morning, midday, and evening fishing periods was established. Then, the technician selected 20 of these hours each week to sample when anglers were present or abundant in the fishery. The remaining 17.5 hours per week were devoted to other projects in Ketchikan. As times of peak angling became somewhat predictable, the schedule became relatively unimportant.

The total harvest of coho salmon in the Ward Creek system in 1991 was estimated using the Statewide Harvest Survey (Mills 1992). The proportion of the total harvest which is of hatchery origin was estimated by multiplying this estimate by the estimated proportion of the harvest which is of hatchery origin.

### Data Collection

Anglers were contacted as they completed their fishing trip and asked if the coho salmon they harvested could be checked for fins. Samplers recorded the day, time of day, status of the fishing trip (completed or not), the number of coho salmon harvested, and the number of harvested fish missing adipose fins. Data were recorded on waterproof data forms. The hours sampled each day, number of anglers

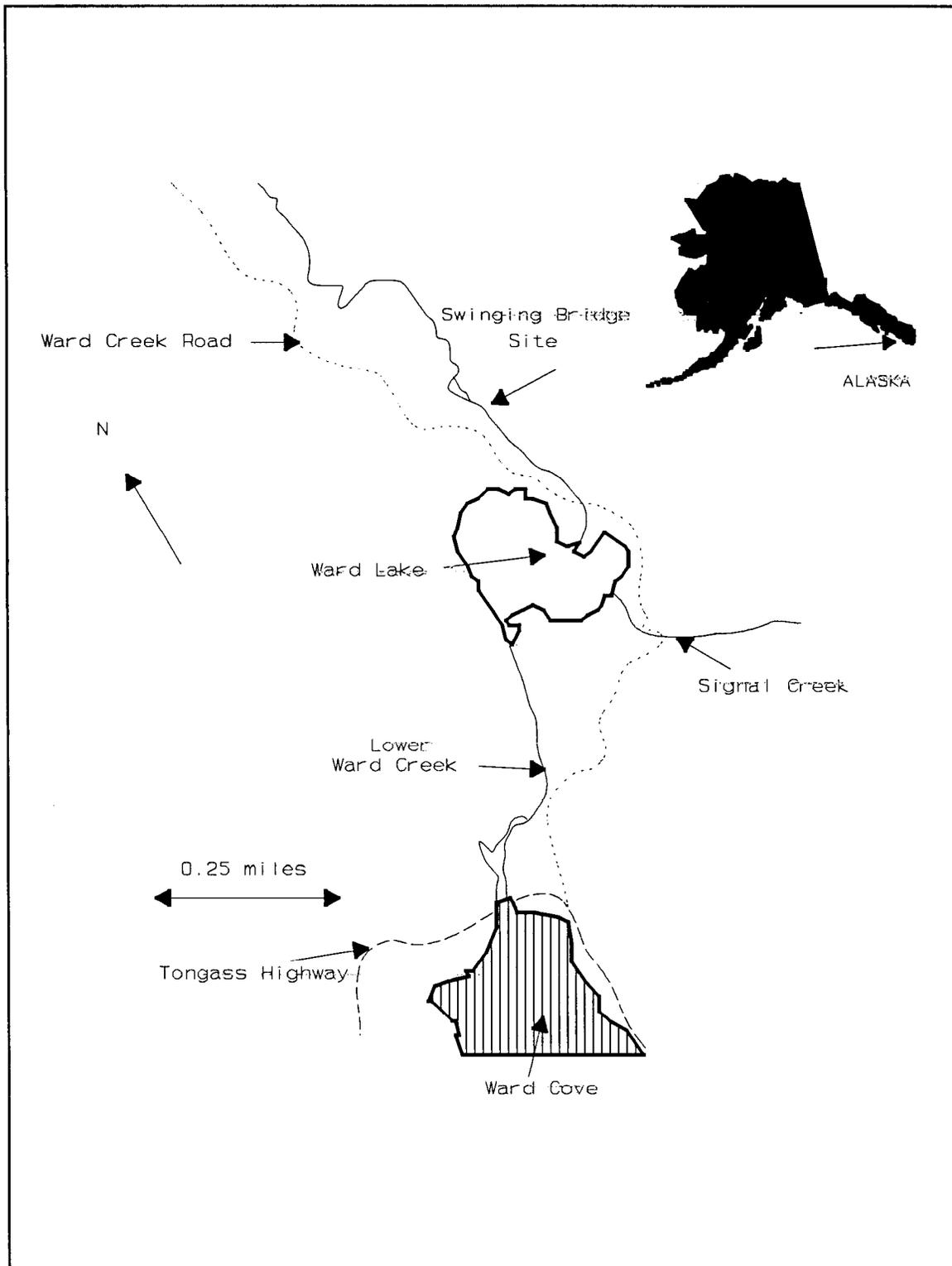


Figure 1. Ward Creek coho study area, 1991.

observed, number of anglers interviewed and rod-hours fished by interviewed anglers, the number of coho reported as released, and other species kept or released, were also recorded.

Heads from adipose-fin-clipped salmon were obtained with the angler's permission, marked with unique-numbered cinch straps, and forwarded to the FRED Division's tag lab in Juneau for tag dissection and decoding. The number of salmon heads obtained and forwarded to the tag lab were recorded along with the sampling data.

### Data Analysis

The proportion of hatchery fish harvested in the fishery was estimated:

$$\hat{p} = \frac{1}{\theta} \hat{p}_c \quad [1]$$

$$\hat{v}[\hat{p}] = \left(\frac{1}{\theta}\right)^2 \left(1 - \frac{n}{\hat{H}}\right) \frac{\hat{p}_c * (1 - \hat{p}_c)}{n-1} \quad [2]$$

where  $p$  is proportion harvested,  $\theta$  is 0.7157 (the fraction clipped),  $p_c$  is the fraction of fish sampled that have a missing adipose fin,  $n$  is the number of harvested fish sampled for missing adipose fins, and  $\hat{H}$  is harvest from the Statewide Harvest Survey.

Note that this estimator is specific to the harvest and should be used cautiously with respect to inferences about the catch, return, or escapement, since anglers may catch and release a fish several times, prefer harvesting fish early or late in the season, and may prefer to harvest (or release) wild or hatchery fish at different rates.

The contribution of hatchery fish to the harvest was estimated:

$$\hat{C} = \hat{H} \hat{p} \quad [3]$$

$$\hat{v}[\hat{C}] = \hat{H}^2 v[\hat{p}] + \hat{p}^2 \hat{v}[\hat{H}] - \hat{v}[\hat{H}] v[\hat{p}] \quad [4]$$

where variance is estimated as the product to 2 independent random variables (Goodman 1960).

### RESULTS

From 15 July through 29 September 1991, 86 sport caught coho salmon were sampled from the Ward Creek fishery (Appendix B). Fifty of these sampled fish had missing adipose fins, indicating that they were of hatchery origin; 42 of the 50 adipose-clipped fish were found to have valid coded-wire tags. The coded-wire tag could not be found in five fish, and the remaining three fish were not examined because the heads and/or data were lost.

All of the tag codes found indicated that the fish harvested were from stocks from the Deer Mountain Hatchery planted in the Ward Creek system. The numbers of each tag code recovered are as follows:

<u>Tag code</u>	Number recovered
04-33-25	11
04-33-26	8
04-33-27	15
04-33-28	8

The fraction of fish sampled that had a missing adipose fin was 0.581 (50 ÷ 86), and the estimated proportion of hatchery fish harvested in the fishery was 0.812 with a standard error of 0.064.

The estimated total harvest of coho salmon in the Ward Creek system in 1991 from the Statewide Harvest Survey is 313 (Mills 1992), with a standard error of 183 (Mike Mills, Alaska Department of Fish and Game, Anchorage, personal communication). Therefore, the contribution of hatchery produced coho salmon to the harvest was 254, with a standard error of 152.

#### DISCUSSION

This study indicates that a high percentage (about 81%) of the sport harvest of coho salmon in the Ward Creek fishery was hatchery-produced. The proportion of harvested coho salmon with adipose clips was about 0.64 ( $\pm 0.07$ ) during July, 0.56 ( $\pm 0.10$ ) during August, and 0.36 ( $\pm 0.15$ ) during September, indicating the "wild" run of coho salmon returned later than the hatchery run. Past enhancement efforts at Ward Creek were probably also successful in enhancing the sport fishery.

#### ACKNOWLEDGMENTS

I thank Wendy Ness for conducting most of the sampling. Evon Zerbetz, Bill Stewart, and Ken Santi also helped with sampling. I also thank Bob Marshall, who provided biometric support in the form of methods and equations.

#### LITERATURE CITED

- Cochran, W. G. 1977. Sampling techniques, third edition. John Wiley and Sons, New York.
- Goodman, L. A. 1960. On the exact variance of products. Journal of the American Statistical Association 55:708-713.
- Johnson, J. K. and J. R. Longwill. 1991. Pacific salmonid coded wire tag releases through 1990. Regional Mark Processing Center, Pacific States Marine Fisheries Commission, Portland, Oregon.
- Mills, M. J. 1992. Harvest, catch, and participation in Alaska sport fisheries during 1991. Alaska Department of Fish and Game. Fishery Data Series No. 92-40, Anchorage.

APPENDIX A



Appendix A1. Estimation of sample sizes.

The number of harvested fish to be inspected for marks to estimate the proportion of the harvest which is of hatchery origin is

$$\hat{n} \approx \left(\frac{1}{\theta}\right)^2 \left(1 - \frac{n}{\hat{H}}\right) \frac{p_c * (1 - p_c)}{\hat{V}[\hat{p}]} + 1$$

This equation is obtained by rearranging (2) and setting  $\hat{V}[\hat{p}]$  to its desired value when the objective criteria for precision  $d = \pm X\%$  of  $p_c$  are exactly met. The equation is solved by iteratively substituting  $\hat{n}$  into  $(1 - n/\hat{H})$  and resolving the equation until the value of  $\hat{n}$  equals that substituted into the right-hand side of the equation. For example, for  $\theta = 0.7157$ ,  $p_c = 0.5862$ ,  $H = 592$ ,  $d = \pm 15\%$ , and 95% confidence intervals,

$$\hat{V}[\hat{p}] = (SE(p))^2 = (d/2 * p)^2 = (.075 * .8142)^2$$

and  $\hat{n}=104$ . Similarly, if 64 fish were sampled proportionally,  $p$  is estimated within  $\pm 20\%$ , and for 193 fish  $p$  is estimated within  $\pm 10\%$ .

Since the variance of the harvest estimate ( $\hat{V}[\hat{H}]$ , equation 4) is determined during the statewide harvest survey, the only variable in this study which will change  $\hat{V}[\hat{C}]$  is  $\hat{V}[\hat{p}]$ . Equation 4 was thus solved for several values of  $\hat{V}[\hat{p}]$  after setting  $\hat{V}[\hat{H}]$  to 133,000. The value of 133,000 was obtained by assuming a coefficient of variation (CV) for  $\hat{H}$  of 0.62 for a reasonably similar Dolly Varden fishery ( $H = 795$ ) at Ward Creek in 1989, and the preliminary estimate of  $H = 592$  for coho salmon harvest in Ward Creek in 1991.

Appendix A2. 1991 sampling data.

DATE	SAMPLE TIME	HOURS	ANGLERS	ANGLERS	ROD	SS	SS	SS	DV	DV	RT	RS	PS	PS	CT	CT
		SAMPLED	OBSERVED	INTERVIEWED	HOURS	C	U	R	K	R	R	R	K	R	K	R
7/15	07:00-09:00	2.0	10	5	4.0	0	0	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	8	4	6.0	0	0	0	0	0	0	0	0	0	0	0
7/16	07:00-09:00	2.0	5	2	2.0	1	0	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	5	5	4.5	0	0	0	0	0	0	0	0	0	0	0
7/17	07:00-09:00	2.0	7	3	2.5	0	1	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	1	0	0.0	0	0	0	0	0	0	0	0	0	0	0
7/20	07:00-09:30	2.5	6	4	8.0	4	0	0	0	0	0	0	0	0	0	0
	13:00-15:30	2.5	12	11	22.5	2	0	4	0	0	0	0	0	0	0	0
	19:00-21:30	2.5	5	5	3.0	0	0	0	0	6	6	0	0	0	0	0
7/21	07:00-09:30	2.5	7	0	0.0	2	0	0	0	0	0	0	0	0	0	0
	13:00-15:30	2.5	11	9	24.0	1	0	0	0	0	0	0	0	0	0	0
	19:00-21:30	2.5	8	8	13.0	0	0	0	0	0	0	0	0	0	0	0
7/22	07:00-09:00	2.0	6	1	2.0	0	1	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	14	13	23.0	0	0	0	0	0	0	0	0	0	0	0
7/25	07:00-09:00	2.0	8	7	6.0	0	0	0	0	0	0	0	0	0	0	0
	17:00-19:00	2.0	6	3	3.0	2	2	0	0	0	0	0	0	0	0	0
7/26	07:00-09:00	2.0	3	2	3.5	2	2	0	0	0	0	0	0	0	0	0
	18:00-19:00	1.0	7	0	0.0	2	0	0	0	0	0	0	0	0	0	0
7/27	07:00-09:30	2.5	5	4	3.5	1	1	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	2	0	0.0	0	0	0	0	0	0	0	0	0	0	0
7/28	07:00-09:30	2.5	7	3	2.5	0	0	0	0	0	0	0	0	0	0	0
	17:30-20:00	2.5	11	11	36.0	2	1	2	0	0	0	0	0	0	0	0
7/29	07:00-09:00	2.0	3	1	1.0	1	1	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	10	7	8.5	1	1	0	0	0	2	0	0	0	0	0
7/30	07:00-09:00	2.0	4	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	10	1	1.0	1	1	0	0	0	0	0	0	0	0	0
8/2	10:00-12:00	2.0	1	0	0.0	1	2	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	3	0	0.0	3	0	0	0	0	0	0	1	0	0	0
8/3	12:00-16:00	4.0	10	3	6.5	2	3	0	0	0	0	0	0	0	0	0
8/4	13:00-17:00	2.0	17	10	26.0	4	2	0	0	0	0	0	0	0	1	0
8/5	17:00-21:00	4.0	15	10	24.5	5	2	0	1	0	0	0	0	0	0	0
8/9	07:00-12:00	5.0	8	6	6.0	0	0	0	2	3	0	0	3	0	0	0
8/10	12:00-18:00	6.0	12	11	41.5	1	2	0	0	0	0	0	0	0	0	0

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Appendix A2. (Page 2 of 3).

DATE	SAMPLE TIME	HOURS	ANGLERS	ANGLERS	ROD	SS	SS	SS	DV	DV	RT	RS	PS	PS	CT	CT
		SAMPLED	OBSERVED	INTERVIEWED	HOURS	C	U	R	K	R	R	R	R	K	R	K
8/11	07:00-12:00	5.0	14	13	24.0	1	0	0	8	0	0	0	0	1	0	0
8/12	07:00-09:00	2.0	5	3	7.5	1	0	1	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	4	2	4.0	0	0	0	0	0	0	0	0	1	0	0
8/15	07:00-08:00	1.0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	17:30-20:30	3.0	11	9	30.5	0	0	0	0	0	2	0	0	0	0	0
8/16	07:00-09:00	2.0	4	1	0.5	1	1	0	0	0	0	0	0	1	0	0
	18:00-20:00	2.0	7	1	2.5	0	0	0	0	0	4	0	0	0	0	0
8/17	12:00-13:00	1.0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	16:00-18:00	2.0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
8/18	07:00-09:30	2.5	4	1	1.0	0	0	0	0	0	0	0	0	0	0	0
	13:00-15:30	2.5	15	9	6.0	0	1	0	0	0	0	0	0	0	0	0
8/21	07:00-08:00	1.0	2	2	3.0	0	0	0	0	0	0	0	0	0	0	0
	17:30-20:30	3.0	10	10	9.0	2	1	0	0	0	0	0	0	0	0	0
8/22	07:00-09:00	2.0	6	1	2.5	0	0	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	4	3	10.5	0	0	0	0	0	0	0	0	0	0	0
8/23	07:00-08:30	1.5	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	19:00-20:00	1.0	1	0	0.0	0	0	0	0	0	0	0	0	0	0	0
8/24	13:00-18:30	5.5	9	4	5.5	0	1	1	0	0	0	0	5	6	2	0
8/25	07:00-11:30	4.5	1	0	0.0	0	0	0	0	0	0	0	0	0	0	0
8/26	07:00-08:00	1.0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	19:00-21:00	2.0	2	2	3.0	0	0	0	0	0	0	0	0	0	0	0
8/29	07:00-08:00	1.0	1	1	2.5	0	0	3	0	0	0	1	0	0	0	0
	11:00-12:00	1.0	3	2	4.0	0	0	0	0	0	0	0	0	1	0	0
	18:00-20:00	2.0	4	1	1.0	1	2	0	0	0	0	0	0	0	0	0
8/30	07:00-08:00	1.0	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	17:00-20:00	3.0	6	1	1.5	1	0	2	0	0	0	0	0	0	0	0
8/31	13:00-17:00	4.0	9	4	10.0	0	0	0	0	0	0	0	1	0	0	2
9/1	13:00-17:00	4.0	13	9	18.0	1	1	4	4	0	1	0	1	0	0	0
9/2	07:00-09:00	2.0	1	0	0.0	1	1	0	0	0	0	0	0	0	0	0
	17:00-19:00	2.0	7	2	5.0	0	0	0	0	0	0	0	0	0	0	0
9/5	07:00-09:00	2.0	1	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	18:00-19:30	1.5	2	1	1.0	0	0	0	0	0	0	0	0	0	0	0
9/6	07:00-08:30	1.5	1	0	0.0	0	0	0	0	0	0	0	0	2	0	0
	12:00-13:00	1.0	2	2	9.0	0	2	0	0	0	0	0	1	0	0	0

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Appendix A2. (Page 3 of 3).

DATE	SAMPLE TIME	HOURS	ANGLERS	ANGLERS	ROD	SS	SS	SS	DV	DV	RT	RS	PS	PS	CT	CT
		SAMPLED	OBSERVED	INTERVIEWED	HOURS	C	U	R	K	R	R	R	K	R	K	R
	17:00-18:30	1.5	9	2	2.0	0	0	2	0	0	0	0	0	2	0	0
9/7	09:00-09:30	0.5	0	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	12:30-15:30	3.0	5	3	1.5	0	0	0	0	0	0	0	0	0	0	0
9/8	13:00-18:00	5.0	26	20	34.5	1	0	0	2	0	1	0	0	1	1	0
9/9	08:00-10:00	2.0	3	1	2.5	0	0	0	0	0	0	4	0	0	3	0
	17:00-19:00	2.0	3	1	0.5	0	0	0	0	0	0	7	0	0	0	0
9/12	08:00-10:00	2.0	3	1	2.5	0	0	1	0	0	0	11	0	0	0	0
	17:00-18:00	1.0	2	0	0.0	0	0	0	0	0	0	0	0	1	0	0
9/13	08:00-10:00	2.0	2	0	0.0	0	1	3	0	2	0	2	0	0	0	0
	17:00-19:00	2.0	4	2	4.5	0	0	0	2	0	0	0	0	0	2	0
9/14	12:45-16:15	3.5	9	7	8.0	0	0	0	8	0	0	0	0	0	1	0
9/15	12:30-18:00	5.5	18	12	22.5	0	0	0	2	13	0	2	0	2	0	0
9/16	08:00-10:00	2.0	3	1	3.0	0	2	0	0	1	0	2	0	1	0	0
	17:00-19:00	2.0	6	3	3.5	0	0	0	0	0	0	0	0	0	0	0
9/17	08:00-09:00	1.0	1	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	16:00-19:00	3.0	3	2	3.0	0	0	0	2	0	0	0	0	0	0	0
9/20	08:00-12:00	4.0	1	1	3.0	0	0	0	0	6	0	5	0	1	0	0
9/21	08:00-12:00	4.0	7	3	9.0	0	0	1	0	0	0	4	0	10	0	0
9/22	08:00-12:00	4.0	2	0	0.0	0	0	0	0	0	0	0	0	0	0	0
9/25	08:00-12:00	4.0	1	0	0.0	0	1	0	0	0	0	0	0	0	0	0
9/26	15:00-19:00	4.0	2	2	1.0	0	0	0	0	0	0	0	0	0	0	0
9/27	08:00-12:00	4.0	1	1	1.5	2	0	0	0	0	0	0	0	0	0	0
9/28	08:00-12:00	4.0	4	4	2.5	0	0	0	0	0	0	0	0	0	0	0
9/29	08:00-12:00	4.0	2	0	0.0	0	0	0	0	0	0	0	0	0	0	0
	17:00-19:00	2.0	7	4	3.0	0	0	0	0	0	0	0	0	0	0	0
TOTALS		227.0	520	303	553.5	50	36	24	31	31	16	38	12	30	10	2

SS = coho salmon  
 DV = Dolly Varden  
 RT = rainbow trout  
 PS = pink salmon  
 CT = cutthroat trout  
 C = clipped  
 U = unclipped  
 R = released  
 K = kept

