Assessment of Harvests of Cook Inlet-Origin Chinook Salmon in Commercial Fisheries in the Kodiak Management Area, 1997-1999

By

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and
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TABLE OF CONTENTS

	Page
LIST OF TABLES	i
LIST OF FIGURES	iii
LIST OF APPENDICES	iv
ABSTRACT	1
INTRODUCTION	2
Background	2
Purpose of Study	3
METHODS	4
Study Area	4
Sample Sizes and Expected Precision	5
Sampling Methods and Data Collection	6
Data Analysis	7
Temporal Variation of Coded Wire Tag Recoveries	7
Examination of Exploitation Rates in the Kodiak Commercial Fishery	8
Contribution Estimates of Coded Wire Tag Cohorts to the Harvest	8
RESULTS	9
Commercial Harvest Estimates	9
Coded Wire Tag Sampling Effort Summary	10
Coded Wire Tag Recovery Summary	11
Temporal Variation of Coded Wire Tag Recoveries	12
Examination of Exploitation Rates in the Kodiak Commercial Fishery	12
Contribution Estimates of Coded Wire Tag Cohorts to the Harvest	13
DISCUSSION	14
LITERATURE CITED	17
TABLES	19
FIGURES	35
APPENDIX	46

LIST OF TABLES

Table		Page
1.	Harvest and escapement of chinook salmon in Cook Inlet and Kodiak, 1984-1998	19
2.	Summary of CWT releases of chinook salmon in Cook Inlet and Kodiak, 1992-1998	20
3.	Area/runtime hatchery groups and tagged wild stocks in Cook Inlet and Kodiak	23
4.	Summary of commercially harvested chinook salmon randomly sampled for missing adipose fins, number of identified tags recovered and harvest by geographic sampling area and week, 9 June through 8 August 1997	25
5.	Summary of commercially harvested chinook salmon randomly sampled for missing adipose fins, number of identified tags recovered and harvest by geographic sampling area and week, 9 June through 8 August 1998	26
6.	Summary of commercially harvested chinook salmon randomly sampled for missing adipose fins, number of identified tags recovered and harvest by geographic sampling area and week, 9 June through 8 August 1999	27
7.	Numbers of coded wire tags recovered from chinook salmon sampled from KMA commercial salmon harvests and assigned to Cook Inlet by hatchery group or wild stock and brood year, 1997	28
8.	Numbers of coded wire tags recovered from chinook salmon sampled from KMA commercial salmon harvests and assigned to Cook Inlet by hatchery group or wild stock and brood year, 1998	29
9.	Numbers of coded wire tags recovered from chinook salmon sampled from KMA commercial salmon harvests and assigned to Cook Inlet by hatchery group or wild stock and brood year, 1999	30
10.	Results of a generalized linear model of CWT recoveries from the Westside Kodiak Harvest Area with tagging, week, year, and all 2-way interactions as effects	31
11.	Number of coded wire tags from six hatchery groups and three wild stocks observed during random sampling of the KMA fishery versus the number of coded wire tags expected if the exploitation rate was 1, 10, and 15 percent and marine survival rate was 0.5, 2, and 8 percent, 1997-1999.	32

LIST OF TABLES (Cont.)

Table | Page

12. Number of tags recovered from random sampling, estimates of harvest, standard error, and precision (for a 90% confidence interval) in the KMA fishery of five hatchery groups from upper Cook Inlet, Cook Inlet hatchery groups summed, and the Kodiak hatchery group, 1997-1999 33

13. Summary of sampled harvest, harvest and standard error, and contribution to the sampled harvest and standard error by aggregate in the KMA fishery, 1997-1999. 34

LIST OF FIGURES

Figure		Page
1.	Map of the Cook Inlet area showing locations of chinook salmon streams	35
2.	Map of the KMA showing the location of chinook salmon systems and commercial salmon fishing districts	36
3.	Map of the KMA identifying chinook CWT geographic sampling areas and location of processing facilities	37
4.	Number of chinook salmon commercially harvested in the KMA during the sampling period by geographic sampling area compared to the chinook salmon season total harvest are wide 1997, 1998, and 1999	38
5.	Chinook salmon commercial harvest and CWT sampling effort by designated sampling area within the KMA (through 8/08), 1997	39
6.	Chinook salmon commercial harvest and CWT sampling effort by designated sampling area within the KMA (through 8/08), 1998	40
7.	Chinook salmon commercial harvest and CWT sampling effort by designated sampling area within the KMA (through 8/08), 1999	41
8.	Summary of CWT recoveries and state or province of origin of coded wire tags randomly recovered from chinook salmon sampled in the KMA commercial fishery (through 8 August), 1997	42
9.	Number of chinook coded wire tags randomly recovered from commercial salmon harvests in each geographic sampling area within the KMA by state or province of origin, 1997, 1998, and 1999	43
10.	Summary of CWT recoveries and state or province of origin of coded wire tags randomly recovered from chinook salmon sampled in the KMA commercial fishery (through 8 August), 1998	44
11.	Summary of CWT recoveries and state or province of origin of coded wire tags randomly recovered from chinook salmon sampled in the KMA commercial fishery (through 8 August), 1999	45

LIST OF APPENDICES

Appendix		Page
A.1.	Expected recoveries of tags, harvest, and CV (harvest) with an assumed sampling rate of 20% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1997	47
A.2.	Expected recoveries of tags, harvest, and CV (harvest) with an assumed sampling rate of 20% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1998	49
A.3.	Expected recoveries of tags, harvest, and CV (harvest) with an assumed sampling rate of 20% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1999	51
A.4.	Expected recoveries of tags, harvest, and CV (harvest) with an assumed sampling rate of 20% by selected cohorts of wild chinook salmon in the KMA fishery during 1997	53
A.5.	Expected recoveries of tags, harvest, and CV (harvest) with an assumed sampling rate of 20% by selected cohorts of wild chinook salmon in the KMA fishery during 1998	54
A.6.	Expected recoveries of tags, harvest, and CV (harvest) with an assumed sampling rate of 20% by selected cohorts of wild chinook salmon in the KMA fishery during 1999	55
A.7.	Expected recoveries of tags, harvest, and CV (harvest) with an actual sampling rate of 28% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1997	56
A.8.	Expected recoveries of tags, harvest, and CV (harvest) with an actual sampling rate of 45% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1998	58
A.9.	Expected recoveries of tags, harvest, and CV (harvest) with an actual sampling rate of 40% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1999	60
A.10.	Expected recoveries of tags, harvest, and CV (harvest) with an actual sampling rate of 28% by selected cohorts of wild chinook salmon in the KMA fishery during 1997	62

LIST OF APPENDICES (Cont.)

Appendix | Page

A.11. Expected recoveries of tags, harvest, and CV (harvest) with an actual sampling rate of 45% by selected cohorts of wild chinook salmon in the KMA fishery during 1998 63

A.12. Expected recoveries of tags, harvest, and CV (harvest) with an actual sampling rate of 40% by selected cohorts of wild chinook salmon in the KMA fishery during 1999 64

B.1. Summary of chinook coded wire tags randomly recovered from KMA commercial salmon harvests by release site and brood year, 1997 65

B.2. Summary of chinook coded wire tags randomly recovered from KMA commercial salmon harvests by release site and brood year, 1998 67

B.3. Summary of chinook coded wire tags randomly recovered from KMA commercial salmon harvests by release site and brood year, 1999 69

C.1. Total harvest, estimated group harvest, contribution, and standard errors by area and week for West Coast Vancouver Island cohorts, 1997-1999 71

C.2. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Northern and Central British Columbia cohorts, 1997-1999 72

C.3. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Fraser River Spring cohorts, 1997-1999 73

C.4. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Washington Coastal cohorts, 1997-1999 74

C.5. Total harvest, estimated group harvest, contribution, and standard errors by area and week for North and Central Oregon Coastal cohorts, 1997-1999 75

C.6. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Willamette River Spring cohorts, 1997-1999 76

C.7. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Upper Columbia River Summer and Fall cohorts, 1997-1999 77

LIST OF APPENDICES (Cont.)

Appendix		Page
C.8.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for Southeast Alaska Inside Rearing cohorts, 1997-1999	78
C.9.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for Southeast Alaska Transboundary cohorts, 1997-1999	79
C.10.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for all hatchery cohorts except for the Kodiak Group (Buskin River), 1997-1999	80
C.11.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for all Cook Inlet hatchery cohorts, 1997-1999	81
C.12.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for Buskin River hatchery cohorts (Kodiak area/runtime group), 1997-1999	82
C.13.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Susitna area/runtime group hatchery cohorts, 1997-1999	83
C.14.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Upper Kenai area/runtime group hatchery cohorts, 1997-1999	84
C.15.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Anchorage area/runtime group hatchery cohorts, 1997-1999	85
C.16.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Lower Kenai (early) area/runtime group hatchery cohorts, 1997-1999	86
C.17.	Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Lower Kenai (late) area/runtime group hatchery cohorts, 1997-1999	87
D.1.	Summary of chinook coded wire tags randomly recovered from KMA commercial harvests sorted by release site, 1997	88
D.2.	Summary of chinook coded wire tags randomly recovered from KMA commercial harvests sorted by release site, 1998	91
D.3.	Summary of chinook coded wire tags randomly recovered from KMA commercial harvests sorted by release site, 1999	97

ABSTRACT

This is the final report of a three-year interdivisional coded wire tag (CWT) study initiated in an attempt to evaluate stock-specific harvests of chinook salmon *Oncorhynchus tshawytscha* in commercial fisheries in the Kodiak Management Area (KMA). Specifically, five Cook Inlet hatchery area/runtime groups and three Cook Inlet wild stocks were evaluated for harvest and contribution to the KMA commercial salmon fishery; tag recoveries for other stocks were evaluated as well.

KMA commercial chinook salmon harvests from three designated geographic sampling areas were sampled at processing facilities. Actual sampling rates of chinook salmon in designated sampling areas of the KMA fishery were 28% in 1997, 45% in 1998, and 40% in 1999. During each of the three years of this study, about 3% of the fish examined were missing an adipose fin.

Following identification of recovered tags, only the Kodiak group had observed numbers of tags equaling or exceeding those expected with a 10% exploitation rate. Furthermore, all groups except Kodiak had observed numbers of tags less than those expected for a 1% exploitation rate. Estimated exploitation rate was insensitive to reasonable changes in the assumed marine survival rate.

In all years, harvest estimates of the area/runtime groups were small relative to the sampled KMA fishery. No one hatchery group had an estimated harvest of more than 87 fish in any one year (Lower Kenai early group in 1998), and overall harvest of five Cook Inlet groups was 58 fish (SE = 31 fish) in 1997, 148 fish (SE = 31) in 1998, and 87 fish (SE = 29) in 1999. In contrast, harvest from the much smaller Kodiak group was 13 fish (SE = 9) in 1997, 125 fish (SE = 27) in 1998, and 93 fish (SE = 25) in 1999. Although precision was low due to low numbers of recoveries per group, estimated harvests were consistently and reliably low in all years, sampling areas, and statistical weeks of the study. Consistently low harvests in all years relative to the observed returns is definitive evidence of the negligible influence of KMA commercial harvests on production of these groups of Cook Inlet chinook salmon.

Tagged chinook salmon from wild stocks in the Kenai River and Willow Creek were present in the KMA fishery during 1997 (1 Kenai tag) and 1998 (2 Kenai tags and 1 Willow tag). No tagged chinook salmon from Deep Creek were observed during the three years of sampling.

Contribution of all hatchery-produced chinook salmon (except the Kodiak group) to the sampled harvest in the KMA fishery ranged from 16% in 1999 to 34% in 1998. Hatchery fish from the west coast of Vancouver Island made up the majority of these fish, accounting for harvests ranging from 1,545 fish (SE = 524) in 1999 to 4,056 fish (SE = 875) in 1998.

The project operational plan stated that final reporting of precise and accurate harvest estimates was predicated on observing at least 25 tag recoveries per Cook Inlet hatchery group. This number of tags was not recovered from the KMA fishery, despite exceeding the sampling goal in all three years of the project. Although precision was low, harvest estimates were consistent in all years. Consistency in estimates of harvest during the three-year study convinced us that publication of small, but imprecise estimates of harvest was prudent from a fishery management and scientific basis. The alternative to calculation and publication of these estimates would have been to state that no estimate of harvest was possible because we were unable to recover at least 25 tags per group. The most reasonable explanation for the low number of tag recoveries appears to be consistently low exploitation rates of Cook Inlet hatchery groups in the KMA fishery. Consequently, there is no recommendation for further study.

INTRODUCTION

Background

North American chinook salmon *Oncorhynchus tshawytscha* stocks occur in relatively large concentrations close to shore from central Alaska to California (Major et al. 1978). Because chinook salmon rear in inshore marine waters they are available to a host of commercial and marine sport fisheries throughout the year. Numerous wild and hatchery chinook salmon stocks from Alaska, British Columbia, Washington, and Oregon are found in the central Gulf of Alaska during their extensive ocean migrations. Information on the exploitation of specific chinook salmon stocks in fisheries along the coast of Alaska is gathered annually through the monitoring of coded wire tags (Bernard and Clark 1996). This release and recovery program allows researchers and managers to determine stock contribution to sampled fisheries. In 1992, a coded wire tag (CWT) program was initiated in Cook Inlet in an attempt to estimate stock-specific chinook salmon harvests in mixed stock marine fisheries throughout Southcentral Alaska (Clark et al. 1994; Lafferty et al. 1998).

Within the Cook Inlet Management Area there are numerous stocks of wild and hatchery chinook salmon, most of which are currently recognized as being fully utilized at existing effort levels (Nelson 1996). Spanning 1990-1998, harvests of Cook Inlet chinook salmon from both sport and commercial user groups in Cook Inlet averaged 94,470 fish annually (Table 1). The largest harvest was derived from the freshwater recreational fishery, which averaged 61,651 fish per year; marine sport fishers harvested 16,127 fish annually, while the commercial net fishery harvest averaged 16,692. Indexed escapement for Cook Inlet stocks during this time frame averaged 89,536 with total run indices ranging from 165,030 to 232,517 (Table 1). Declines in escapement indices for several streams within the Susitna River drainage and lower Kenai Peninsula (Figure 1) during the early to mid-1990s prompted management restrictions and research programs to examine stock contribution of chinook salmon harvests in marine waters of southcentral Alaska.

The Kodiak Management Area (KMA; Figure 2) has two wild chinook salmon stocks (Karluk and Ayakulik Rivers), an introduced run in Dog Salmon Creek, and one hatchery stock, which supports a "put and take" fishery in the Buskin River. A second chinook run, introduced in the Pasagshak River, resulted in poor productivity and chinook fishing has remained closed in the Pasagshak River. Over 95% of the KMA chinook salmon escapement is counted annually through Karluk and Ayakulik River weirs located in the Southwest (SW) Kodiak District (Brodie 1999).

Escapement of chinook salmon into the Karluk and Ayakulik rivers occurs from late May to mid July. Chinook salmon escapements into these rivers were at very low levels through the mid-1970s resulting in the development of escapement goals in the late 1970s. In addition, precision of chinook salmon escapement enumeration was increased as salmon counting weirs were moved closer to saltwater. The current individual chinook salmon escapement goals for the Karluk (4,500-8,000) and Ayakulik rivers (6,500-10,000) as well as the overall KMA chinook salmon escapement goal (11,100-19,300) have been achieved since 1981 (Prokopowich 2000). In

addition, the upper escapement goal has been exceeded every year since 1990 except 1992, with an average KMA chinook salmon escapement of 24,069 fish (1990-1998; Table 1).

Unlike the Cook Inlet Management Area, commercial fishing represents the major component of the total chinook harvest in the KMA although there are no directed fisheries on chinook salmon. Rather, chinook salmon are commercially harvested in fisheries directed at sockeye or pink salmon. Total harvests of chinook salmon in the KMA averaged 25,145 fish annually from 1990-1998. About 87% (21,995 fish) of the total harvest was attributed to the commercial fishery while KMA sport fisherman harvested an average of 3,149 from marine and freshwater fisheries combined (Table 1) and the subsistence chinook salmon harvest averaged 228 fish (1989-1998; Prokopowich 2000).

There are no stock identification programs underway to estimate the contribution of Karluk and Ayakulik River bound chinook salmon to the annual commercial harvest. To date, the only chinook stock in the KMA that is coded wire tagged is the Buskin River which probably represents less than 0.5% of the total KMA chinook salmon production (Brodie 1999). Tagging of Buskin River chinook salmon occurred only in 1995 and 1996.

In 1993, the KMA experienced a record commercial chinook salmon harvest of about 42,000 fish. This harvest was almost twice as large as the previous high harvest of 24,000 fish, which occurred in 1992. Although 22,000 chinook salmon were counted as escapement in 1993, the lack of knowledge regarding local stock-specific chinook salmon production coupled with concerns relating to Cook Inlet chinook salmon stocks prompted a pilot KMA CWT recovery study in 1994.

The primary objective of the pilot study was to determine the frequency of occurrence and origin of non-local chinook salmon commercially harvested in the KMA. Although the pilot study was not able to fully meet the primary objective, it was ascertained that a larger sampling fraction of chinook salmon was necessary to generate reliable contribution estimates and associated confidence intervals. In addition, it was realized that a larger sampling fraction could be achieved in conjunction with ongoing biological sampling of the KMA sockeye salmon *Oncorhynchus nerka* commercial harvest (Swanton 1997).

Purpose of Study

A three-year interdivisional CWT sampling program was initiated in 1997 in an attempt to evaluate stock-specific harvests of chinook salmon in commercial and marine sport fisheries in the KMA. The first objective of this project, was to estimate the harvest of five area hatchery groups and three wild stocks, of Cook Inlet origin chinook salmon that have been tagged, in sampled KMA commercial fishing districts from 9 June through 8 August 1997 through 1999. Within this first objective, recoveries of CWTs were compared to potential CWT recoveries under various scenarios of potential exploitation rates in the KMA commercial fishery and marine survival. This was done to determine if exploitation rates of Cook Inlet origin chinook salmon were more likely to be less than, or greater than, 10-15%. Potential exploitation rates of 10-15% on these stocks in the KMA fishery were deemed a concern by Cook Inlet managers prior to the start of the study.

Although not a specific objective in this study, there were recoveries of CWTs from chinook salmon stocks originating in southeast Alaska, British Columbia, Washington, and Oregon during the three-year study. Where possible, estimates of harvest of these cohorts were calculated and reported herein.

The second component of this study, which is not covered in this document, proposed to examine a major portion of the Kodiak marine sport harvest in order to allow for detection of coded wire tagged chinook salmon of Cook Inlet origin.

This report summarizes the sampling of coded wire tagged chinook salmon recovered from the KMA commercial harvest during 1997, 1998, and 1999. This is the final report detailing recovery information and harvest estimates for all three years, 1997-1999, and these results supersede all previous data summaries.

METHODS

Study Area

Hatchery-produced chinook salmon are an integral part of recreational salmon fisheries management in Cook Inlet (Starkey et al. 1999). Annually, chinook salmon smolt from a variety of brood sources are released into Cook Inlet systems to create or enhance recreational fisheries (Table 2). Evaluation of these releases for success and cost effectiveness involves coded wire tagging a portion of the releases, sampling marine fisheries to estimate harvests, estimating recreational harvests in the stream of origin, and estimating escapement in the stream of origin. This study represents one component of sampling marine fisheries to estimate harvests of hatchery-produced chinook salmon.

For the purposes of this study, Cook Inlet hatchery releases were grouped into the following area/runtime combinations: the Susitna group with early-run chinook salmon returning to rivers of the Susitna Drainage; the Anchorage group with early-run fish returning to Ship Creek and Eagle River; the Upper Kenai Peninsula (UKP) group with early-run fish returning to the Ninilchik and Kasilof rivers; the Lower Kenai Peninsula (LKP) early-run group with fish returning to various sites in Kachemak Bay; and the LKP late-run group with fish returning to Homer Spit (Figure 1, Table 3). In addition to these Cook Inlet releases, a Kodiak group, comprising early-run chinook salmon returning to the Buskin River on Kodiak Island was used to assess the contribution of Buskin River chinook salmon to the KMA fishery.

As part of a larger program to estimate contributions of wild stocks of chinook salmon to marine fisheries, fingerling and smolts from the Kenai River, Deep Creek, and Willow Creek were also marked and released with coded wire tags (Table 3). These three wild stocks, along with the five hatchery area/runtime groups and the Kodiak group, were evaluated for harvest and contribution to the KMA fishery.

The KMA encompasses central Gulf of Alaska waters surrounding the entire Kodiak Archipelago and that portion of the Alaska Peninsula draining into Shelikof Strait from Cape Douglas to

Kilokak Rocks (Figure 2). The archipelago and mainland portions of the management area are each about 241 km in length while Shelikof Strait, separating the two, averages 48 km in width.

The KMA is composed of seven commercial salmon fishing districts and 52 sections (Figure 2). Emphasis of the salmon management program is to achieve biological escapement goals while harvesting surplus production of local stocks in an orderly fashion (ADF&G 1999). Five species of salmon are harvested within the KMA, all of which have established escapement goals (Prokopowich 2000). Directed commercial fisheries occur on sockeye, pink, chum, and coho salmon; chinook salmon are not targeted. To open and close the fishery inseason, managers employ qualitative analysis of run timing, catch per unit effort (CPUE), species composition of the harvest, regulatory management plans, and aerial survey and weir escapement counts.

Recognizing that KMA salmon tender deliveries would likely be of mixed origin, three designated geographic harvest areas were identified in the CWT sampling plan: the Westside Kodiak Harvest Area which included the Southwest Afognak Section, Northwest Kodiak District, and Southwest Kodiak District; the Alitak Bay District; and the Eastside Kodiak District (Figure 3).

Sample Sizes and Expected Precision

Given that a minimum 20% sampling effort could be achieved overall in the three KMA harvest areas delineated above, the following scenarios were used to estimate the likely number of tag recoveries to be made per hatchery area/runtime group. A 10% to 15% exploitation rate on Cook Inlet hatchery stocks was used in the scenarios because this level of exploitation was deemed a "concern" by Cook Inlet fishery managers prior to the start of sampling in 1997. In this way, exploitation rate in the Kodiak commercial fishery could be qualitatively evaluated to see if it was at least 10-15% or less than 10-15%, based on the number of tag recoveries alone.

To construct the scenarios, it was first assumed that chinook salmon marine survival rates average 2% from release as smolt to return as adults (Sweet 1999). Next it was assumed that all returns, except 1-ocean fish, would be of mature adults and that the average age composition of any return would be 26% 2-ocean, 36% 3-ocean, and 38% 4-ocean. This is the average age composition of mature hatchery-produced chinook salmon returning to Willow Creek in Cook Inlet (Sweet 1999). It was also assumed that all returns except 1-ocean fish would be of mature fish to evaluate the most conservative estimates of numbers of tags, harvest, and relative precision of estimates of harvest. Based on early recoveries of coded wire tags in 1997, it appeared likely that immature 1-ocean fish were also being harvested in the KMA. To accommodate the harvest of 1-ocean fish into the scenarios, it was assumed that a 2% survival rate would apply to 1-ocean fish and that 100% of surviving 1-ocean fish would be available for harvest. The following relationship was used to estimate the expected number of tags to be recovered in 1997-1999:

$$\tilde{m}_{ij} = R_j\left(S_j U_{ij} \phi_i \lambda_i\right) \tag{1}$$

where: $\tilde{m}_{ij}$ = the anticipated number of tags recovered of cohort j in stratum i;

R_j = the number of tags released of cohort j;

S_j = the probability that a member of cohort j survives to return at a particular ocean age;

U_{ij} = the probability that a member of cohort j will be harvested in stratum i;

ϕ_i = the probability of a fish being sampled from the harvest in stratum i; and,

λ_i = the probability of a marked fish in the sample from stratum i having a decodable tag.

Anticipated numbers of tags recovered can then be used with the proportion of each cohort marked to estimate anticipated harvest $\left(\tilde{r}_{ij}\right)$ and variance $v\left(\tilde{r}_{ij}\right)$:

$$\tilde{r}_{ij} = \frac{\tilde{m}_{ij}}{\lambda_i \phi_i \theta_j}, \tag{2}$$

$$\text{and } v\left(\tilde{r}_{ij}\right) = \frac{\tilde{r}_{ij}}{\lambda_i \phi_i \theta_j}\left(1 - \lambda_i \phi_i \theta_j\right) \tag{3}$$

where: θ_j = the fraction of cohort j with tags.

Anticipated harvests and variances were then summed for each of the five area/runtime groups of hatchery releases. Assuming λ_i is 1.0 (all recovered heads make it to the tag lab and all tags are decodable), expected relative precision (α =0.10) of estimates of harvest ranged from ±18% (CV of 11% × z-value of 1.645) for the early Lower Kenai and Susitna groups to ±33% (CV of 20% × 1.645) for the Anchorage group. Anticipated numbers of tags that produced estimates within 35% of the true value 90% of the time range from 25 (Anchorage group) to 114 (Susitna group) tags. From these scenarios it appeared that approximately 25 or more tag recoveries from any of the area/runtime hatchery groups were sufficient to provide precise estimates of harvest for these groups and to indicate that exploitation rate was 10-15% or higher (Appendices A1 through A3).

The same scenarios were run for the three returning wild stocks. All assumptions were the same as for the hatchery groups, except that age compositions were changed to reflect differences seen in these three stocks. In Deep Creek, 2-ocean returns tend to comprise 26%, 3-ocean returns 36%, and 4-ocean returns 38% of the total return. In the Kenai River, 2-ocean returns tend to comprise 8%, 3-ocean returns 42%, 4-ocean returns 48%, and 5-ocean returns 2% of the total return. In Willow Creek, 2-ocean returns tend to comprise 26% of the total return. As with hatchery recoveries, 1-ocean fish were also added into the scenarios. With an assumed exploitation rate of 10-15%, anticipated recoveries of tags would range from 1-4 tags recovered from the Deep Creek release to 6-18 tags recovered from Kenai River releases. Anticipated recoveries resulted in estimates of expected relative precision of ±75% (CV of 45% × 1.645) for Willow Creek, ±95% (CV of 58% × 1.645) for Deep Creek, and ±118% (CV of 72% × 1.645) for Kenai River (Appendices A4 through A6).

Sampling Methods and Data Collection

KMA commercial chinook harvests were sampled at processing facilities in the Port of Kodiak, Uganik, Larsen Bay, and Alitak from 9 June through 8 August during 1997 through 1999 (Figure 3). An effort was made to sample at least 20% of the chinook salmon harvested in each of the designated geographic sampling areas weekly.

Sampling consisted of examining all fish from deliveries identified by the processing dock foreman to be from a designated harvest area, enumerating the chinook component of the harvest, and examining each chinook salmon for a missing adipose fin. Although an attempt was made during each sampling event to examine the entire delivery load, on occasion processing was underway when the sampling team arrived at the processing facility. In these instances, the sampling crew examined all chinook salmon sorted prior to their arrival and continued through the load noting on the sampling form that the entire load was not examined.

Following sampling, actual fish tickets were reviewed to confirm the harvest dates and harvest area. Heads were secured from chinook salmon missing an adipose fin (potentially tagged) along with the associated data, which included the number of chinook salmon examined and number of chinook missing an adipose fin. Biweekly, all samples and associated CWT sampling forms were shipped to the Alaska Department of Fish and Game (ADF&G) tag lab in Juneau for processing. Sensitive metal detectors were used to detect the presence of tags that were then dissected out of the head and decoded. Harvest statistics, sampling information, and CWT tag-recovery data were entered and maintained on an Oracle database. Recovery data presented in this report were generated on 8 November 1999 and designated by tag lab personnel as "final".

KMA salmon harvest numbers for the 1997, 1998, and 1999 seasons were obtained from summary reports of individual harvest receipts (fish tickets). The fish ticket database was edited by Kodiak area salmon management biologists prior to final catch summaries being generated on 3 March 2000.

Data Analysis

Temporal Variation of Coded Wire Tag Recoveries

In order to determine if there was any temporal variation of CWT recoveries, a generalized linear model (GLM) was performed, assuming a Poisson error structure (McCullagh and Nelder 1984). The GLM equation was of the form:

$$y_{ijkl} = \mu + \alpha_i + \beta_j + \gamma_k + \alpha\beta_{ij} + \alpha\gamma_{ik} + \beta\gamma_{jk} + \varepsilon_{ijkl} \tag{4}$$

where:

μ = grand mean
α = effect due to tagging
β = effect due to year
γ = effect due to week
$\alpha\beta$ = effect due to tagging/year interaction
$\alpha\gamma$ = effect due to tagging/week interaction
$\beta\gamma$ = effect due to year/week interaction
ε = Poisson error term

A log-linear model was used to analyze whether there was a significant difference between all tagged (Cook Inlet stocks and others) versus untagged chinook salmon for different weeks and years (Christensen 1997). Pearson's chi-square test contingency table analysis was used to

determine differences in the proportion of tagged fish by week for each year (Christensen 1997). When there were significant differences between weeks, residual analyses of contingency tables were used to identify the week(s) that differed the most.

Examination of Exploitation Rates in the Kodiak Commercial Fishery

As described in the Sample Sizes and Expected Precision section above, an exploitation rate of 10-15% on any of the five area/runtime groups of hatchery-produced chinook salmon in the KMA fishery was deemed a "concern" by Cook Inlet fishery managers. Prior to sampling, scenarios were constructed to determine the potential number of tag recoveries that would be observed if the exploitation rate was 10-15%, marine survival was 2% and the sampling rate in the fishery was 20% (Appendices A1-A3). After sampling was completed for all three years, actual sampling rates were entered (instead of 20%) into these same scenarios to adjust the expected number of tag recoveries by area/runtime group and year of sampling. The expected number of recoveries was then compared to the observed number of recoveries to determine if exploitation rates were greater than or less than 10-15%. Although this procedure still results in only a qualitative test of exploitation rate (actual marine survival rates and contributions by age are unknown), we believe it provides a relatively simple and conservative look at overall exploitation rates of Cook Inlet-origin chinook salmon in the KMA fishery. As further indication that exploitation rates were actually less or greater than 10-15%, the assumed marine survival rate of 2% was varied from 0.5% to 8% (a fourfold decrease and increase in assumed survival) and expected numbers of tags recovered were recalculated for each area/runtime group.

Contribution Estimates of Coded Wire Tag Cohorts to the Harvest

Only random recoveries of tags from one of the three areas (and the Mainland area during 1997 and 1999) were used to estimate harvest of tagged cohorts of chinook salmon in each year. Harvest of each cohort j was estimated by area/statistical week combination i for each year during 1997-1999, using the following formulae from Bernard and Clark (1996):

$$\hat{r}_{ij} = \frac{m_{ij}}{\lambda_i \phi_i \theta_j} \tag{5}$$

where: $\hat{r}_{ij}$ = estimated harvest of cohort j in area/week i;

m_{ij} = number of tags decoded from cohort j during sample area/week i;

$\lambda_i = \frac{a_i' t_i'}{a_i t_i}$ = the probability of a marked fish in the sample from stratum i having a decodable tag

given:

a_i = number of marked fish in the sample of harvest from sample area/week i;

a_i' = number of heads that reach the tag laboratory;

t_i = number of heads from sample area/week i with coded wire tags detected magnetically in the laboratory; and,

t_i' = number of heads from which the coded wire tag was decoded;

$\phi_i = \frac{n_i}{N_i}$ = proportion of the harvest sampled from sample area/week i, given:

n_i = the number sampled from sample area/week i; and,

N_i = the total number harvested from sample area/week i (from fish tickets); and,

θ_j = the proportion of cohort j that bears a coded wire tag.

Assuming the proportion marked for each hatchery release is known, variance of estimated harvest was approximated by:

$$\hat{v}\left(\hat{r}_{ij}\right) = \frac{\hat{r}_{ij}}{\lambda_i \phi_i \theta_j}\left(1 - \lambda_i \phi_i \theta_j\right) \tag{6}$$

Cohorts comprising each area/runtime hatchery group and their respective variances were then summed to estimate overall harvest for each group.

Insufficient numbers of tags from Cook Inlet wild stocks were recovered to estimate harvest, therefore, Cook Inlet wild stocks were deemed "present" in the KMA fishery if at least one tag was recovered and "absent" if no tags were recovered.

Harvest and contribution of other tagged stocks of chinook salmon were also estimated for each of the three KMA areas and years by cohort. Cohorts were summed to estimate the harvest and contribution of all hatchery-produced chinook to the KMA fishery. Specifically, harvests and contributions of three British Columbia aggregates (west coast Vancouver Island, northern and central British Columbia, and Fraser River spring), coastal Washington cohorts, coastal northern and central Oregon cohorts, Willamette River spring cohorts, upper Columbia River summer and fall cohorts, and two southeast Alaska aggregates (inside rearing and transboundary cohorts) of chinook salmon were also estimated as suggested by staff biologists working with the Pacific Salmon Commission (McPherson et al. unpublished).

RESULTS

Commercial Harvest Estimates

A total of 18,728 chinook salmon were commercially harvested in the KMA during 1997 and 89% of this harvest (16,752 fish) occurred during the CWT sampling period of 9 June through 8 August. During the sampling period, the majority of the harvest took place within the Westside Kodiak Harvest Area and 67% (11,280 fish) of the harvest took place within the three designated geographic sampling areas combined (Figure 4).

In 1998, 94% of the total KMA chinook salmon commercial harvest (17,341 fish) took place during the CWT sampling period 9 June through 8 August. About 93% of this harvest took place within the three designated geographic sampling areas combined with the majority of the harvest again occurring in the Westside Kodiak Harvest Area (Figure 4).

Again during 1999, 94% of the 18,299 KMA chinook salmon commercial harvest took place within the CWT sampling period 9 June through 8 August. About 73% of this harvest occurred within the three designated geographic sampling areas combined and, once again, the majority of the harvest took place within Westside Kodiak Harvest Area (Figure 4).

Commercial harvests from all three years fell slightly below the previous 1990-1998 average of 21,995 fish (Table 1).

Coded Wire Tag Sampling Effort Summary

Throughout the 1997 sampling period (9 June through 8 August), 6,015 chinook salmon were examined for a missing adipose fin, which represents 36% of the total chinook salmon harvested during that time period (Table 4). The overall sampling objective and, in most cases, the weekly 20% sampling objective, was met or exceeded in each geographic sampling area (Figure 5). The overall sampling fraction in the Westside Kodiak Harvest Area was 27%. After 11 July (weeks 29-32), the 20% sampling objective was not met primarily due to the large number of tender deliveries with fish harvested outside the designated geographical sampling areas. About 60% of the 267 chinook salmon harvested in the Alitak Bay District were examined for missing adipose fins. The majority of this effort took place prior to 28 June (weeks 24-26) when about 68% (181) of these fish were harvested. Sampling effort in the Eastside Kodiak District exceeded 20% during three weeks that represented over 99% of the harvest in that area. Although not designated as a sampling area in the operational plan, 24% (792 fish) of the Mainland District chinook salmon harvest was sampled for CWT. These samples were obtained opportunistically due to several deliveries with fish exclusively from the Mainland District. Once final fish ticket information was received, it was determined that 1,972 chinook salmon were also examined from mixed sampling areas or areas not included in this study.

Of 16,362 chinook salmon harvested in the KMA from 9 June through 8 August 1998, 8,614 (53%) were examined (Table 5). The overall sampling objective and, in most cases, the weekly 20% sampling objective, was met or exceeded in each of the designated geographic sampling areas (Figure 6). The overall sampling fraction in the Westside Kodiak Harvest Area was 45%. After 25 July (weeks 31-32), the 20% sampling objective was not met primarily due to small numbers of chinook per delivery and mixed tender deliveries. In the Alitak Bay District, 50% of the chinook salmon harvest was examined with the weekly sampling objective being achieved during most weeks. Overall, about 43% of the Eastside Kodiak District chinook salmon harvested during the sampling period were examined. Most of these were sampled during a two-week period representing 81% of the harvest in that area. No samples were collected from the Mainland District, which is not surprising as only 393 chinook salmon were harvested in this area during 1998. It was determined that 1,696 chinook salmon were examined from mixed sampling areas or areas not included in this study after review of final fish ticket information.

During 1999, 7,940 chinook salmon were examined for missing adipose fins during the CWT sampling period, representing 46% of the total chinook salmon harvested during that time period (Table 6). As in previous years, the overall sampling objective and, in most cases, the weekly 20% sampling objective, was met or exceeded in all geographic sampling areas (Figure 7). The overall sampling fraction in the Westside Kodiak Harvest Area was 45%. The 20% sampling objective was not met during weeks 29 and 30 primarily due to the small numbers of chinook per delivery. In the Alitak Bay District, 41% of the 231 chinook salmon harvested were examined for missing adipose fins and the sampling effort exceeded 20% during all but one week. Although not designated as a sampling area in the operational plan, 12% (356 fish) of the Mainland District chinook salmon harvest was sampled for CWT. These samples were obtained opportunistically

from several deliveries with fish exclusively from the Mainland District. Once final fish ticket information was received, it was determined that 1,699 chinook salmon were examined from mixed sampling areas or areas not included in this study.

Coded Wire Tag Recovery Summary

During 1997, 162 (3%) of the fish examined were missing an adipose fin (Figure 8). Of the 159 samples shipped to the CWT lab (3 heads were lost prior to the tag lab detection process), 140 tags were recovered, and tags were not present in 19 samples. Of the identified tags recovered, 38 had been collected in the Westside Kodiak Harvest Area, 24 were found in Mainland harvests, 12 were from the Eastside Kodiak District, and 2 were from the Alitak Bay District. The remaining 64 tags were collected from mixed harvest areas or areas not defined in this study (Figure 9).

About 13% (18) of the identified tag recoveries in 1997 were from Alaska stocks, 72% (101) were from British Columbia, 7% (10) were from Washington, and 8% (11) originated in Oregon (Figure 8; Appendix B.1.). Of the 18 tags recovered from Alaskan stocks, 11 were from Cook Inlet including the following stocks: two Kenai River; three Ship Creek; three Ninilchik River; one Deception Creek; one Crooked Creek; and one from Homer Spit. Tags recovered in 1997 assigned to Cook Inlet are summarized by hatchery or wild stock in Table 7. In addition, four recoveries were from Southeast Alaska, and three were from the Buskin River in the KMA (Appendix B.1.).

During 1998, 300 (3%) of the fish examined were missing an adipose fin (Figure 10). Of the 293 samples shipped to the CWT lab (7 heads were lost prior to tag lab detection process), 256 tags were recovered, 2 tags were identified as a nonsense code or unreadable, and tags were not found in 35 samples. Of the identified tags recovered, 162 had been collected in the Westside Kodiak Harvest Area, 20 were from the Alitak Bay District, and 17 were from the Eastside Kodiak District. The remaining 57 tags were collected from mixed harvest areas or areas not defined in this study (Figure 8).

Of the recovered tags identified for 1998, 31% (79) were from Alaska, 49% (125) were from British Columbia, 15% (38) were from Washington, and 5% (14) originated in Oregon (Figure 10; Appendix B.2.). Of the 79 tags recovered from Alaskan stocks, 46 were from Cook Inlet including the following stocks: three Lowell Creek (Resurrection Bay); five Seldovia Hbr; 10 Homer Spit; five Halibut Cove; six Ninilchik River; one Crooked Creek; two Kenai River; one Willow Creek; and 13 from Deception Creek Table 8 summarizes tag recoveries assigned to Cook Inlet summarized by hatchery or wild stock. In addition, nine recoveries from KMA sampled harvests were from Southeast Alaska, and 24 were from the Buskin River in the KMA (Appendix B.2.).

A total of 7,940 commercially harvested chinook salmon were examined during 1999 and about 3% (240) were missing an adipose fin (Figure 11). Of the 236 samples shipped to the CWT lab (4 heads were lost), 201 tags were recovered, 1 tag was identified as a nonsense code, and tags were not present in 34 samples. Of the identified tags recovered, 124 had been collected in the Westside Kodiak Harvest Area, 10 were found in Mainland harvests, 20 were from the Eastside

Kodiak District, and 3 were from the Alitak Bay District. The remaining 44 tags were collected from mixed harvest areas or areas not defined in this study (Figure 8).

About 32% (64) of the identified tag recoveries for 1999 were from Alaska, 31% (62) were from British Columbia, 13% (27) were from Washington, and 24% (48) originated in Oregon (Figure 11; Appendix B.3.). Of the 64 tags recovered from Alaskan stocks during 1999, 21 were from Cook Inlet including the following stocks: one Lowell Creek (Resurrection Bay), four Seldovia Harbor, two Halibut Cove Lagoon, five Ninilchik River, two Crooked Creek, five Deception Creek, one Deshka River, and one Ship Creek Tags recoveries assigned to Cook Inlet are summarized by hatchery or wild stock in Table 9. In addition, 24 recoveries were from Southeast Alaska, and 19 were from the Buskin River in the KMA (Appendix B.3.).

Temporal Variation of Coded Wire Tag Recoveries

The Westside Kodiak Harvest Area was the only designated sampling area with sufficient tag recoveries (Tables 4-6) to perform GLM and log-linear analyses. GLM analysis of CWT recoveries from the Westside Kodiak Harvest Area showed that all terms were significant ($p < 0.05$), except the tagging/week interaction term (Table 10), though the p-value was still fairly low (0.1384). The higher p-value of the tagging/week term indicates that there was no significant difference overall in the proportion of tagged fish from week to week. Since the tagging/year interaction term was significant, indicating that there was a difference in the proportion of tagged chinook caught between years, and the week/year interaction term was significant, indicating the number of chinook salmon caught by week was different between years, then there would likely be a difference between the proportion of tagged chinook salmon for different weeks and years. Therefore tag data were kept separate by statistical week for estimation of harvest contribution.

The log-linear analysis of CWT recoveries from the Westside Kodiak Harvest Area was also significant ($p= 0.0000$), suggesting that there was a significant difference in the proportion of tagged chinook salmon for different weeks and years as indicated by the GLM analysis. Contingency table analysis for each year resulted in a significant difference ($p < 0.05$) in the proportion of tagged chinook salmon in 1997 ($p= 0.0420$) and 1999 ($p= 0.0055$), however there was no significant difference ($p = 0.5480$) in 1998. For 1997, the residual analysis indicated that week 28 had a higher proportion of tagged chinook salmon than the other weeks. For 1999, the residual analysis indicated that weeks 27 and 29 both had higher than expected residuals, and thus higher proportions of tagged chinook salmon.

Examination of Exploitation Rates in the Kodiak Commercial Fishery

Sampling rates of chinook salmon in designated sampling areas of the KMA fishery were 28% in 1997, 45% in 1998, and 40% in 1999 (Tables 4-6). Adjusted numbers of tags expected from hatchery-produced cohorts in the KMA fishery, given that exploitation rate was 10-15%, ranged from 21 in the Kodiak group during 1999 to 346 in the Susitna group during 1998 (Appendices A4-A6). Observed numbers of tags ranged from none in the Anchorage group in 1998 and 1999, LKP early group in 1997, and LKP late group in 1997 and 1999, to 21 in the Kodiak group during 1998 (Table 11).

Across a broad range of assumed marine survival rates, no group except the Kodiak group had observed numbers of tags approaching or exceeding those expected with a 10% exploitation rate. Moreover, with an assumed marine survival rate as low as 0.5%, all groups except Kodiak had observed numbers of tags equal to or less than those expected for a 1% exploitation rate (Table 11). The Kodiak group had 21 tags recovered during 1998 with an expected recovery of 23 tags if the exploitation rate had been 10% and marine survival rate had been 2% (Table 11). Similarly, the Kodiak group had 15 tags observed in 1999 with 21 tags expected at an exploitation rate of 10%.

Contribution Estimates of Coded Wire Tag Cohorts to the Harvest

In all years, harvest estimates of the area/runtime groups were small relative to the sampled KMA fishery (Table 12). No one hatchery group had an estimated harvest of more than 87 fish in any one year (LKP early group in 1998) and overall harvest of five Cook Inlet groups was 58 fish (SE = 31 fish) in 1997, 148 fish (SE = 31) in 1998, and 87 fish (SE = 29) in 1999. In contrast, harvest from the much smaller Kodiak group was 13 fish (SE = 9) in 1997, 125 fish (SE = 27) in 1998, and 93 fish (SE = 25) in 1999. Although overall precision in each group was low, estimated harvests were consistently low within and across years of the study. Spatial and temporal estimates of these harvests are summarized in Appendix C.

Tagged chinook salmon from wild stocks in the Kenai River and Willow Creek were present in the KMA fishery during 1997 (1 Kenai tag) and 1998 (2 Kenai tags and 1 Willow tag). No tagged chinook salmon from Deep Creek were observed during the three years of sampling. Specifics of these recoveries can be found in Appendix D.

Total harvest of all hatchery-produced chinook salmon (excepting the Kodiak group) ranged from 2,510 fish (SE = 545) in 1999 to 5,215 fish (SE = 904) in 1998 (Table 13). Contribution of these harvests to the sampled harvest in the KMA fishery ranged from 16% in 1999 to 34% in 1998. Hatchery fish originating from the west coast of Vancouver Island in British Columbia made up the majority of these fish, accounting for harvests ranging from 1,545 fish (SE = 524) in 1999 to 4,056 fish (SE = 875) in 1998 (Table 13). Several other southeast Alaska, British Columbia, Washington, and Oregon aggregates of chinook salmon cohorts made up most of the remaining contributions. However, no other aggregate besides west coast Vancouver Island made up more than 3% of the sampled KMA harvest in any one year (Table 13).

Estimates of harvest for aggregates other than west coast of Vancouver Island were of low precision, primarily because of low numbers of tag recoveries. However, estimates of harvest were consistent within and across years, indicating reliably low levels of contribution to the KMA fishery. Spatial and temporal estimates of these harvests are summarized in Appendix C and individual tag recoveries are summarized in Appendix D.

DISCUSSION

Although less than 25 tags recoveries per Cook Inlet area/runtime group were observed in the KMA fishery during any one year of the study, estimates of harvest were calculated for these and other aggregates of chinook salmon stocks. Prior to the study, it was thought that restricting estimates of harvest to only those groups with 25 or more tags would ensure that: 1) sampling was adequate to detect and precisely estimate harvests that exceeded exploitation rates of 10% in the KMA fishery and 2) imprecise estimates of harvest would not be worth publishing because they would also be inconsistent and therefore unreliable. After sampling concluded in 1999, we soon realized that: 1) sampling was done consistently each year and that the proportion of the KMA fishery sampled exceeded our planning goals by more than 100% in two of the three years (1998 and 1999) and 2) when harvests were estimated from recoveries of Cook Inlet hatchery groups, they were small relative to the KMA fishery and adult returns of these stocks, and they were remarkably consistent from year to year. We then extended calculation of harvests to other stocks outside of Cook Inlet and found similar results; although precision was low due to less than 25 tag recoveries, harvests were consistent in all years. Consistency in estimates of harvest during the three-year study convinced us that publication of small, but imprecise estimates of harvest was prudent from a fishery management and scientific basis, regardless of the level of precision in these estimates. The alternative to calculation and publication of these estimates would have been to state that no estimate of harvest was possible because we were unable to recover at least 25 tags per group. We would be able to state that exploitation rates were likely less than 10% from our sampling scenarios, but we would also have concluded that estimates of harvest were unreliable and not worth publication. From a fishery management standpoint, many in the public would have incorrectly concluded from these statements that we: 1) did a poor job of sampling the KMA fishery and 2) exploitation rates might be much higher than 1% because estimates of harvest were deemed not worthy of publication. Therefore, publication of imprecise, but consistently small harvests of Cook Inlet hatchery cohorts in the KMA fishery provided the best indication of the lack of importance of the KMA fishery in influencing production of chinook salmon bound for Cook Inlet.

As stated above, it was evident from the results that at least 25 tags per group were not seen in the KMA fishery, despite exceeding the 20% sampling goal in all three years of the project. Given the actual sampling rates during this project, observation of at least 25 tags per hatchery group would have meant: 1) exploitation rate of these groups in the KMA fishery was 10% or greater and/or 2) marine survival was at least 10-fold greater than the assumed value of 2%. Conversely, observations of less than 25 tags per group in the KMA fishery may have been due to: 1) exploitation rates of less than 10% and/or 2) marine survival at least 10-fold smaller than 2%. Although marine survival can vary markedly in chinook salmon, the most reasonable explanation appears to be very low exploitation rates of Cook Inlet hatchery groups in the KMA fishery.

Another possible factor that could have influenced recoveries of CWTs from the KMA fishery is censoring of tagged fish from the catch by fisherman or processors. Censoring of tags from the harvest would tend to understate the harvest and contribution of Cook Inlet chinook salmon in the KMA fishery. Although there was no physical evidence of censoring by fishermen or processors during the three years of the study, it appears that our conclusions regarding potential

exploitation of Cook Inlet hatchery fish in the KMA fishery would not change even if there were fairly high rates of censoring. For example, 34% or about one-third of the harvest in the KMA was contributed from tagged hatchery fish in 1998 (Table 13). Had fishermen been censoring tags from their catches and the entire KMA harvest composed of these tagged stocks, at most approximately 2 out of 3 tags, or two-thirds of the tags would have to have been censored from the harvest. If we corrected for censoring by multiplying the observed numbers of tags by 3 and compare this with the number of tags expected if exploitation rate had been 10% or greater, we see that none of the Cook Inlet area/runtime groups would have exceeded a 10% exploitation rate. More specifically, the lower Kenai Peninsula early-run group had 11 tag recoveries in 1998. If we multiply this by 3 to correct for the maximum possible censoring, we get 33 tag recoveries. However, we would have needed to observe at least 204 tag recoveries for a 10% exploitation rate on this group (see Appendix A8). Since this was the maximum rate of censoring possible for 1998, it is impossible for censoring of tags to have caused the consistently low exploitation rates in the KMA fishery.

Further evidence of low exploitation rates in the KMA fishery is corroborated in the recent return data for Cook Inlet hatchery programs. For example, inriver run (recreational harvest plus escapement) of hatchery chinook salmon in Willow Creek has recently ranged from 1,800 to 5,000 fish (1992-1996, Sweet 1999), while harvest of the Susitna hatchery group in the KMA fishery ranged from 11 to 20 fish (1997-1999, Table 12). Similarly, inriver run of hatchery chinook salmon in Ship Creek recently ranged from 2,500 to 4,500 fish (1996-1998, unpublished data), while harvest of the Anchorage hatchery group in the KMA fishery ranged from 0 to 40 fish (1997-1999, Table 12). Conversely, it appears that the exploitation rate of the Kodiak hatchery group in the KMA fishery exceeded 10%, especially during 1998 and 1999. The inriver run to the Buskin River ranged from approximately 140 to 160 fish (1997-1999; Schwarz and Clapsadl 2000), while harvest of the Kodiak hatchery group ranged from 13 to 125 fish (1997-1999, Table 12).

Age composition of harvests of Cook Inlet hatchery groups in the KMA fishery was skewed towards younger and likely immature fish. Recoveries of tagged chinook salmon in these groups were primarily from 2 to 4 years old, representing fish spending their first through third summer in the ocean after smolting. Conversely, mature hatchery chinook returning to Cook Inlet primarily range in age from 4 to 6 years, representing fish that spent two to four years in the ocean.

Contributions of non-local hatchery cohorts of chinook salmon to the KMA fishery ranged from 16% to 34% during the three-year study. This range of contribution is similar to that observed during the 1994 pilot study (Swanton 1997). The majority of the identified harvest is of tagged cohorts from British Columbia hatcheries, with the majority of these fish originating from the west coast of Vancouver Island. West coast Vancouver Island hatcheries release approximately 17 to 23 million chinook salmon smolt each year, so that an annual harvest of 1,500 to 4,000 of west coast of Vancouver Island fish is similar in magnitude to harvests observed for Cook Inlet hatchery cohorts (58 to 148 harvested) in the KMA fishery, where total smolt releases are 13 to 28-fold smaller than west coast Vancouver Island (900 thousand to 1.3 million smolt released each year). Age composition of these non-local cohorts is similar to that observed for Cook Inlet chinook salmon harvested in the KMA fishery, with the majority of the harvest from 2 to 4 year old fish.

GLM results showed the proportion of tagged fish harvested in the KMA between years was significantly different. This might be expected given that the number of tagged fish released varies from year to year. While the GLM results in a statistical difference, the proportion of tagged fish recovered remained remarkably consistent during 1997, 1998, and 1999 (2.3%, 3.0%, and 2.5% respectively) even though the sampling rates of chinook salmon in designated sampling areas of the KMA fishery varied from year to year. The GLM analysis also indicated that there was no significant difference overall in the proportion of tagged fish from week to week; however, contingency table analysis for each individual year showed a difference in the proportion of tagged chinook salmon by week during years 1997 and 1999.

Had the results of this study shown a 10% exploitation of Cook Inlet chinook salmon, this study may have been continued. In addition, we may have recommended tagging Karluk and Ayakulik chinook stocks to provide direct estimates of harvests of more local stocks in the KMA commercial fishery. However, given the consistently low number of tags recovered and subsequently low estimated levels of exploitation, there is no recommendation for further studies.

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Table 1. Harvest and escapement of chinook salmon in Cook Inlet and Kodiak, 1984-1998.

	Cook Inlet (Upper and Lower)							Kodiak					
	Sport Harvest		Total Harvest					Sport Harvest		Total Harvest			
Year	Marine	Freshwater	Sport	Commercial	All	Escapement	Total	Marine	Freshwater	Sport	Commercial	All	Escapement
1984	6,981	41,685	48,666	10,701	59,367	92,948	152,315	210	711	921	4,661	5,582	14,249
1985	7,288	44,167	51,455	25,012	76,467	96,205	172,672	162	600	762	4,970	5,732	13,513
1986	5,420	57,177	62,597	39,985	102,582	131,406	233,988	168	352	520	4,381	4,901	10,800
1987	7,603	61,483	69,086	40,314	109,400	110,027	219,427	54	325	379	4,613	4,992	23,566
1988	15,949	74,742	90,691	30,205	120,896	119,276	240,172	145	1,419	1,564	22,394	23,958	34,707
1989	10,733	61,690	72,423	28,023	100,446	63,263	163,709	120	967	1,087	106	1,193	25,916
1990	11,479	47,310	58,789	17,466	76,255	93,938	170,193	66	930	996	18,806	19,802	25,693
1991	10,823	58,090	68,913	14,378	83,291	82,041	165,332	198	2,310	2,508	22,234	24,742	27,010
1992	14,679	76,599	91,278	18,459	109,737	70,988	180,725	585	1,632	2,217	24,299	26,516	18,736
1993	23,975	101,996	125,971	19,808	145,779	86,738	232,517	2,454	2,638	5,092	42,199	47,291	21,763
1994	20,430	76,796	97,226	21,195	118,421	78,456	196,877	668	2,498	3,166	22,576	25,742	21,187
1995	20,946	55,457	76,403	20,199	96,602	83,805	180,407	1,138	1,484	2,622	18,704	21,326	30,358
1996	11,317	42,186	53,503	15,496	68,999	96,031	165,030	1,060	1,410	2,470	13,071	15,541	19,423
1997	17,623	56,317	73,940	14,160	88,100	110,579	198,679	2,722	2,499	5,221	18,728	23,949	27,800
1998	13,875	40,106	53,981	9,068	63,049	103,246	166,295	2,519	1,533	4,052	17,341	21,393	24,652
Avg. 1984-1988	8,648	55,851	64,499	29,243	93,742	109,972	203,715	148	681	829	8,204	9,033	19,367
Avg. 1990-1998	16,127	61,651	77,778	16,692	94,470	89,536	184,006	1,268	1,882	3,149	21,995	25,145	24,069

[a] Sport catch is estimated harvest from the ADF&G Statewide Harvest Survey. Harvest of chinook salmon from Resurrection Bay is excluded from Cook Inlet harvests.

[b] Cook Inlet commercial catches include all Upper and Lower Cook Inlet subdistricts.

[c] Escapement in Cook Inlet is a combination of sonar counts from the Kenai River; aerial survey indices from four systems on the Kenai Peninsula,13 systems in Susitna drainage, one system in Knik Arm, and three systems on the west side of Cook Inlet; and foot surveys from four systems in the Anchorage area. As such, these are considered indices of escapement and likely constitute a minimum estimate of escapement of all chinook to Cook Inlet.

[d] Escapement in Kodiak is the combined weir counts from the Karluk and Ayakulik Rivers.

[e] Average catch was calculated for 1984-1988 instead of 1984-1989 because of the Exxon Valdez oil spill in 1989.

Table 2. Summary of CWT releases of chinook salmon in Cook Inlet and Kodiak, 1992-1998.

System	Brood Source	Release Year	Number of Fingerling	Number of Smolt	Total Release	Theta[a]	Likely ocean recovery ages during year: 1997	1998	1999
Wild stock releases:									
Kenai River		1992	-	-					
	Wild	1993	152,397	-	N/A		3	4	5
	Wild	1994	88,109	-	N/A		2	3	4
	Wild	1995	58,741	1,479	N/A		2	2,3	3,4
	Wild	1996	-	6,532	N/A		1	2	3
	Wild	1997	-	32,205	N/A			1	2
	Wild	1998	-	17,329	N/A				1
Deep Creek		1992	-	-					
		1993	-	-					
	Wild	1994	3,644	9,611	N/A	0.0770	2,3	3,4	4
	Wild	1995	5,174	8,394	N/A	0.1520	2	2,3	3,4
	Wild	1996	4,359	4,608	N/A	0.1520	1	1,2	2,3
	Wild	1997		4,970	N/A			1	2
	Wild	1998							
Deshka River		1992	-	-					
		1993	-	-					
		1994	-	-					
		1995							
	Wild	1996	61	1,429	N/A		1	1,2	2,3
	Wild	1997	16,942	-	N/A				1
		1998							
Willow Creek		1992	-	-					
		1993	-	-					
		1994	-	-					
		1995	-	-					
	Wild	1996	46,206	-	N/A			1	2
	Wild	1997	123,701	-	N/A				1
	Wild	1998	101,798	-	N/A				
Hatchery releases:									
Susitna group:	Deception	1992		33,464	179,724	0.1862			
Willow Creek	Deception	1993		39,420	160,194	0.2461	4		
	Deception	1994		45,921	177,913	0.2581	3	4	
	Deception	1995		46,256	167,643	0.2759	2	3	4
	Deception	1996		47,145	186,918	0.2522	1	2	3
	Deception	1997		207,973	209,644	0.9920		1	2
	Deception	1998		195,615	197,392	0.9910			1
Upper Kenai group:	Ninilchik	1992		41,335	132,387	0.3122			
Ninilchik River	Ninilchik	1993		42,960	184,585	0.2327	4		
	Ninilchik	1994		45,535	210,513	0.2163	3	4	
	Ninilchik	1995		54,115	54,662	0.9900	2	3	4
	Ninilchik	1996		50,866	51,686	0.9841	1	2	3
	Ninilchik	1997		50,292	50,698	0.9920		1	2
	Ninilchik	1998		47,480	48,798	0.9730			1
Crooked Creek		1992							
		1993							
	Crooked Creek	1994		43,034	224,784	0.1914	3	4	
	Homer	1995		38,420	184,049	0.2087	2	3	4
	Homer	1996		40,196	193,180	0.2081	1	2	3
	Homer	1997		39,022	223,201	0.1748		1	2
	Homer	1998		42,610	137,338	0.3103			1

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Table 2. (page 2 of 3)

System	Brood Source	Release Year	Number of Fingerling	Number of Smolt	Total Release	Theta[a]	Likely ocean recovery ages during year: 1997	1998	1999
Anchorage group:		1992							
Ship Creek		1993							
	Ship	1994		42,864	199,830	0.2145	3	4	
	Ship	1995		38,570	218,487	0.1765	2	3	4
	Ship	1996		40,109	231,444	0.1733	1	2	3
	Ship	1997		40,319	326,371	0.1235		1	2
	Ship	1998		21,501	122,810	0.1751			1
Eagle River		1992							
		1993							
	Ship	1994		41,649	107,547	0.3873	3	4	
		1995							
		1996							
		1997							
		1998							
Lower Kenai Early Run group:		1992							
Halibut Cove Lagoon		1993							
	Crooked Creek	1994		21,038	98,872	0.2128	3	4	
	Homer	1995		36,700	37,577	0.9767	2	3	4
	Homer	1996		39,345	97,729	0.4026	1	2	3
	Homer	1997		39,487	78,133	0.5054		1	2
	Homer	1998		38,014	65,893	0.5769			1
Homer Spit (ER)	Homer	1992		20,614	126,130	0.1634			
		1993							
	Crooked Creek	1994		25,615	163,963	0.1562	3	4	
	Homer	1995		40,291	216,026	0.1865	2	3	4
	Homer	1996		39,017	204,085	0.1912	1	2	3
	Homer	1997		38,810	217,733	0.1782		1	2
	Homer	1998		39,652	177,730	0.2231			1
Seldovia Harbor		1992							
		1993							
	Crooked Creek	1994		45,439	107,246	0.4237	3	4	
	Homer	1995		40,678	116,165	0.3502	2	3	4
	Ninilchik	1996		39,610	118,274	0.3349	1	2	3
	Ninilchik	1997		39,834	103,757	0.3839		1	2
	Ninilchik	1998		40,125	69,461	0.5777			1
Lower Kenai Late Run group:		1992							
Homer Spit (LR)		1993							
	Kasilof	1994		22,383	56,920	0.3932	3	4	5
	Homer	1995		40,466	123,048	0.3289	2	3	4
	Homer	1996		38,787	108,204	0.3585	1	2	3
	Homer	1997		39,264	100,933	0.3890		1	2
	Homer	1998		39,997	112,100	0.3568			1
Twin Falls (LR)		1992							
	Homer	1993		28,392	100,000	0.2839	4	5	
		1994							
		1995							
		1996							
		1997							
		1998							

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Table 2. (page 3 of 3)

System	Brood Source	Release Year	Number of Fingerling	Number of Smolt	Total Release	Theta[a]	Likely ocean recovery ages during year: 1997	1998	1999
Kodiak group:		1992							
Buskin		1993							
		1994							
	Deception	1995		41,078	84,349	0.4870	2	3	4
	Deception	1996		40,681	113,220	0.3593	1	2	3
	Deception	1997							
	Deception	1998							

[a]The proportion of cohort that bears a coded wire tag.

Table 3. Area/runtime hatchery groups and tagged wild stocks in Cook Inlet and Kodiak.

Hatchery Groups

Susitna - ADF&G is using the Deception Creek brood, and smolts are stocked back into the stream of origin (Deception Creek is a tributary of Willow Creek in the Susitna drainage). This is the northernmost group, is an early-run (June) stock, and has been detected in the Deep Creek marine (May/June), Northern District set net (June), and Central District Eastside set net fisheries (July) in Cook Inlet, and the purse seine fishery (July) in Kodiak.

Anchorage - ADF&G is using Ship Creek brood, and smolts are stocked back into the stream of origin and into Eagle River (discontinued after 1994). This group is from the Anchorage urban area, is an early-run (June) stock, and has been detected in the Deep Creek marine (May/June) and the Northern District set net fisheries (June) in Cook Inlet, and the purse seine fishery (July) in Kodiak.

Upper Kenai - ADF&G is using the Ninilchik and Crooked Creek (tributary of Kasilof River) brood, and smolts are stocked back into their respective streams. These two releases represent the northern end of the Kenai Peninsula, are early-run stocks (June), and have been detected in the Deep Creek marine (May/June) and Central District Eastside set net fisheries (late June/July) in Cook Inlet, and the purse seine fishery (July) in Kodiak.

Lower Kenai (Early Run) - ADF&G is using the Crooked Creek (eggs now taken at Homer Spit) brood, and smolts are stocked at Homer Spit, Halibut Cove, and the Seldovia boat harbor. There are no naturally occurring chinook runs to these sites. These runs were developed from early-run (June) fish and have been detected in the Deep Creek marine (May/June) and Central District Eastside (late June/July) set net fisheries in Cook Inlet, and the purse seine fishery (July) in Kodiak.

Lower Kenai (Late Run) - ADF&G is using Kasilof River (eggs now taken at Homer Spit) brood, and smolts are stocked at Homer Spit, with a single release at Twin Falls (discontinued in 1993). There are no naturally occurring chinook runs to these sites. These runs were developed from late-run (July) mainstem Kasilof River fish and have been detected in the Deep Creek marine (May/June) and Central District Eastside set net fisheries (late June/July) in Cook Inlet.

Kodiak – ADF&G is using Deception Creek brood and smolts are stocked into the Buskin River (discontinued in 1996). This is no naturally occurring run at this site. This run was developed from early run (June) fish and have not been detected in Cook Inlet fisheries.

Tagged Wild Stocks

Kenai River - ADF&G has been tagging mostly age-0 (fingerling) and some age-1 (smolt) juvenile chinook on this high profile Kenai Peninsula stream since 1992. Tagged juveniles likely represent both early and late-run components of the adult return. Inriver return is monitored by sonar counts and tagged fish are recovered through an extensive inriver test netting program. Tagged Kenai chinook have been detected in the Deep Creek marine (May/June) and Central District Eastside set net fisheries (late June/July) in Cook Inlet, and in the purse seine fishery (June/July) in Kodiak.

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Table 3. (page 2 of 2)

Deep Creek - ADF&G has been tagging approximately equal amounts of age-0 (fingerling) and age-1 (smolt) juvenile chinook on this small Kenai Peninsula stream since 1994. There is only an early run component to adult returns. Inriver return has been monitored by aerial survey and more recently by floating weir. Tagged fish are recovered through sampling of adults at the weir. Tagged Deep Creek chinook have been detected in the Deep Creek marine (May/June) fishery.

Willow Creek – ADF&G began tagging age-0 (fingerling) juvenile chinook in this tributary of the Susitna River in 1996. There is only an early-run component to adult returns. Willow Creek is also the site of a successful chinook enhancement program, with about 200,000 smolt released annually since the late-1980s. Inriver return has been monitored by aerial survey and a weir operation is planned for the year 2000. Tagged fish will be recovered in Willow Creek through sampling of the inriver sport fishery and at the planned weir. Tagged Willow Creek chinook have not been recovered in any marine fisheries to date.

Table 4. Summary of commercially harvested chinook salmon randomly sampled for missing adipose fins, number of identified tags recovered and harvest by geographic sampling area and week, 9 June through 8 August 1997.

	Sample Week									
Harvest Area	24 6/9-13	25 6/14-20	26 6/21-27	27 6/28-7/04	28 7/5-11	29 7/12-18	30 7/19-25	31 7/26-8/01	32 8/2-8	Total
Westside Kodiak										
sampled	13	198	945	873	288	66	186	2	3	2,574
tags recovered	0	1	10	15	11	0	1	0	0	38
harvest	63	332	2,637	1,705	1,059	976	2,233	173	262	9,440
% coverage	21%	60%	36%	51%	27%	7%	8%	1%	1%	27%
Alitak Bay District										
sampled	50	20	88	1	0	1	1	0	0	161
tags recovered	0	2	0	0	0	0	0	0	0	2
harvest	30	12	139	41	10	16	10	1	8	267
% coverage	100% [a]	100% [a]	63%	2%	0%	6%	10%	0%	0%	60%
Eastside Kodiak District										
sampled	0	0	0	0	211	273	32	0	0	516
tags recovered	0	0	0	0	7	5	0	0	0	12
harvest	0	0	1	0	703	736	131	0	2	1,573
% coverage	–	–	0%	–	30%	37%	24%	–	0%	33%
Mainland District										
sampled	0	0	0	0	613	127	52	0	0	792
tags recovered	0	0	0	0	11	10	3	0	0	24
harvest	0	0	0	0	2,430	790	120	0	13	3,353
% coverage	–	–	–	–	25%	16%	43%	–	0%	24%
Mixed or undesignated										
sampled	0	0	67	0	1,217	412	274	0	2	1,972
tags recovered	0	0	1	0	40	11	12	0	0	64
KMA Total										
sampled	63	218	1,100	874	2,329	879	545	2	5	6,015
tags recovered	0	3	11	15	69	26	16	0	0	140
harvest	93	344	2,790	1,776	4,323	4,346	2,596	177	307	16,752 [b]
% coverage	68%	63%	39%	49%	54%	20%	21%	1%	2%	36%
Sampled Area Total										
sampled	63	218	1,033	874	1,112	467	271	2	3	4,043
tags recovered	0	3	10	15	29	15	4	0	0	76
harvest	113	352	2,777	1,746	4,202	2,518	2,494	174	285	14,661
% coverage	56%	62%	37%	50%	26%	19%	11%	1%	1%	28%

[a] The number of chinook sampled was greater than the number reported on fish tickets.

[b] Total KMA chinook harvest through 8/08/98.

Table 5. Summary of commercially harvested chinook salmon randomly sampled for missing adipose fins, number of identified tags recovered and harvest by geographic sampling area and week, 9 June through 8 August 1998.

	Sample Week									
Harvest Area	24 6/7-13	25 6/14-20	26 6/21-27	27 6/28-7/4	28 7/5-11	29 7/12-18	30 7/19-25	31 7/26-8/1	32 8/2-8	Total
Westside Kodiak										
sampled	350	2,198	1,082	767	536	305	433	175	68	5,914
tags recovered	11	53	28	18	14	12	18	6	2	162
harvest	482	4,412	2,668	1,084	1,063	799	882	976	814	13,180
% coverage	73%	50%	41%	71%	50%	38%	49%	18%	8%	45%
Alitak Bay District										
sampled	87	167	104	104	112	0	31	54	20	679
tags recovered	3	5	1	3	7	0	1	0	0	20
harvest	64	449	254	246	88	75	47	74	49	1,346
% coverage	100% [a]	37%	41%	42%	100% [a]	0%	66%	73%	41%	50%
Eastside Kodiak District										
sampled	0	0	0	0	155	163	7	0	0	325
tags recovered	0	0	0	0	5	11	1	0	0	17
harvest	0	0	98	0	337	294	23	2	6	760
% coverage	–	–	0%	–	46%	55%	30%	0%	0%	43%
Mainland District										
sampled	0	0	0	0	0	0	0	0	0	0
tags recovered	0	0	0	0	0	0	0	0	0	0
harvest	0	0	0	0	44	31	110	205	3	393
% coverage	–	–	–	–	0%	0%	0%	0%	0%	0%
Mixed or undesignated										
sampled	43	389	413	138	211	233	172	86	11	1,696
tags recovered	0	11	14	6	7	12	4	3	0	57
KMA Total										
sampled	480	2,754	1,599	1,009	1,014	701	643	315	99	8,614
tags recovered	14	69	43	27	33	35	24	9	2	256
harvest	567	4,962	3,165	1,338	1,561	1,245	1,119	1,423	982	16,362 [b]
% coverage	85%	56%	51%	75%	65%	56%	57%	22%	10%	53%
Sampled Area Total										
sampled	437	2,365	1,186	871	803	468	471	229	88	6,918
tags recovered	14	58	29	21	26	23	20	6	2	199
harvest	546	4,861	3,020	1,330	1,488	1,168	952	1,052	869	15,286
% coverage	80%	49%	39%	65%	54%	40%	49%	22%	10%	45%

[a] The number of chinook sampled was greater than the number reported on fish tickets.

[b] Total KMA chinook harvest through 8/08/98.

Table 6. Summary of commercially harvested chinook salmon randomly sampled for missing adipose fins, number of identified tags recovered and harvest by geographic sampling area and week, 9 June through 7 August 1999.

	Sample Week									
Harvest Area	24 6/6-12	25 6/13-19	26 6/20-26	27 6/27-7/3	28 7/4-10	29 7/11-17	30 7/18-24	31 7/25-31	32 8/1-7	Total
Westside Kodiak										
sampled	38	1,016	1,768	1,178	579	142	57	150	66	4,994
tags recovered	3	16	41	39	13	8	2	0	2	124
harvest	117	2,587	2,654	2,337	1,592	753	440	382	189	11,051
% coverage	32%	39%	67%	50%	36%	19%	13%	39%	35%	45%
Alitak Bay District										
sampled	8	0	42	0	0	0	14	24	7	95
tags recovered	0	0	1	0	0	0	0	2	0	3
harvest	16	0	75	26	0	0	37	50	27	231
% coverage	50%	–	56%	0%	–	–	38%	48%	26%	41%
Eastside Kodiak District										
sampled	0	0	24	0	354	208	14	174	22	796
tags recovered	0	0	2	0	9	5	0	4	0	20
harvest	0	0	99	0	293	365	350	225	35	1,367
% coverage	–	–	24%	–	100% [a]	57%	4%	77%	63%	58%
Mainland District										
sampled	0	136	8	0	0	9	151	10	42	356
tags recovered	0	3	0	0	0	0	4	0	3	10
harvest	0	488	411	17	379	213	927	439	93	2,967
% coverage	–	28%	2%	0%	0%	4%	16%	2%	45%	12%
Mixed or undesignated										
sampled	0	336	406	93	101	89	434	117	123	1,699
tags recovered	0	1	10	2	6	3	11	3	8	44
KMA Total										
sampled	46	1,488	2,248	1,271	1,034	448	670	475	260	7,940
tags recovered	3	20	54	41	28	16	17	9	13	201
harvest	171	3,254	3,841	2,538	2,564	1,365	1,940	1,141	448	17,262 [b]
% coverage	27%	46%	59%	50%	40%	33%	35%	42%	58%	46%
Sampled Area Total										
sampled	46	1,152	1,842	1,178	933	359	236	358	137	6,241
tags recovered	3	19	44	39	22	13	6	6	5	157
harvest	133	3,075	3,239	2,380	2,264	1,331	1,754	1,096	344	15,616
% coverage	35%	37%	57%	49%	41%	27%	13%	33%	40%	40%

[a] The number of chinook sampled was greater than the number reported on fish tickets.

[b] Total KMA chinook harvest through 8/07/99.

Table 7. Numbers of coded wire tags recovered from chinook salmon sampled from KMA commercial salmon harvests and assigned to Cook Inlet by hatchery group or wild stock and brood year, 1997.

Hatchery Group/Wild Stock Release Site	Brood Year 1992	1993	1994	1995	Total
Hatchery Group					
Susitna					
DECEPTION CREEK 247-41	0	0	0	1	1
Anchorage					
SHIP CREEK 247-50	0	0	0	3	3
Upper Kenai					
NINILCHIK RIVER 244-20	0	0	0	3	3
CROOKED CREEK 244-30	0	0	1	0	1
Lower Kenai (early)					
HOMER SPIT 241-13	1	0	0	0	1
Lower Kenai (late)	0	0	0	0	0
subtotal	1	0	1	7	9
Wild Stock					
KENAI RIVER 244-30	0	1	1	0	2
subtotal	0	1	1	0	2
Cook Inlet Total	1	1	2	7	11

Table 8. Numbers of coded wire tags recovered from chinook salmon sampled from KMA commercial salmon harvests and assigned to Cook Inlet by hatchery group or wild stock and brood year, 1998.

Hatchery Group/Wild Stock Release Site	Brood Year 1992	1993	1994	1995	1996	Total
Hatchery Group						
Susitna						
DECEPTION CREEK 247-41	0	0	0	1	12	13
Anchorage	0	0	0	0	0	0
Upper Kenai						
NINILCHIK RIVER 244-20	0	0	1	2	3	6
CROOKED CREEK 244-30	0	0	0	1	0	1
Lower Kenai (early)						
SELDOVIA HARBOR 241-11	0	0	2	2	1	5
HOMER SPIT 241-13	1	0	6	0	3	10
HALIBUT COVE LAG 241-15	0	0	2	2	1	5
Lower Kenai (late)	0	0	0	0	0	0
subtotal	1	0	11	8	20	40
Wild Stock						
KENAI RIVER 244-30	1	1	0	0	0	2
WILLOW CREEK 247-41	0	0	0	1	0	1
subtotal	1	1	0	1	0	3
Cook Inlet Total	2	1	11	9	20	43

Table 9. Numbers of coded wire tags recovered from chinook salmon sampled from KMA commercial salmon harvests and assigned to Cook Inlet by hatchery group or wild stock and brood year, 1999.

Hatchery Group/Wild Stock	Brood Year				
Release Site	1994	1995	1996	1997	Total
Hatchery Group					
Susitna					
DECEPTION CREEK 247-41	0	0	1	4	5
Anchorage					
SHIP CREEK 247-50	0	1	0	0	1
Upper Kenai					
NINILCHIK RIVER 244-20	1	2	2	0	5
CROOKED CREEK 244-30	0	2	0	0	2
Lower Kenai (early)					
SELDOVIA HARBOR 241-11	0	2	1	1	4
HALIBUT COVE LAG 241-15	1	1	0	0	2
Lower Kenai (late)	0	0	0	0	0
subtotal	2	8	4	5	19
Wild Stock					
DESHKA RIVER 247-41	0	1	0	0	1
subtotal	0	1	0	0	1
Cook Inlet Total	2	9	4	5	20

Table 10. Results of a generalized linear model of CWT recoveries from the Westside Kodiak Harvest Area with tagging, week, year, and all 2-way interactions as effects.

Effect	Residual	df	Change in Residual	Change in df	P-value from Chi Square
Grand mean	30,698.22	53			
Tagging	15,064.33	52	15,633.89	1	0.000
Year	13,631.82	50	1,432.51	2	0.000
Week	2,464.64	42	11,167.19	8	0.000
Tagging/year	2,450.87	40	13.77	2	0.001
Tagging/week	2,438.57	32	12.30	8	0.138
Year/week	29.71	16	2,408.85	16	0.000

Table 11. Number of coded wire tags from six hatchery groups and three wild stocks observed during random sampling of the KMA fishery versus the number of coded wire tags expected if the exploitation rate was 1, 10, and 15 percent and marine survival rate was 0.5, 2, and 8 percent, 1997-1999.

			Tags Expected at:								
		Tags	1% Exploitation Rate			10% Exploitation Rate			15% Exploitation Rate		
Group	Year	Recovereda	0.5% Survival	2% Survival	8% Survival	0.5% Survival	2% Survival	8% Survival	0.5% Survival	2% Survival	8% Survival
Susitna hatchery	1997	1	1	6	19	13	49	198	18	74	298
	1998	8	5	24	91	58	230	920	87	346	1,381
	1999	4	5	22	91	57	230	918	85	344	1,376
Upper Kenai hatchery	1997	1	2	10	36	22	91	361	33	136	541
	1998	5	2	17	65	40	164	652	62	243	978
	1999	6	2	14	59	38	147	585	54	220	878
Anchorage hatchery	1997	2	1	5	17	11	45	178	16	66	267
	1998	0	1	7	30	18	73	293	29	110	439
	1999	0	0	5	20	12	49	197	18	74	296
Lower Kenai (Early Run)	1997	0	3	11	41	22	101	402	37	151	606
	1998	11	3	22	82	50	204	820	75	308	1,229
	1999	6	3	18	77	48	188	761	71	286	1,142
Lower Kenai (Late Run)	1997	0	1	6	20	12	51	206	19	77	310
	1998	4	1	7	26	16	67	265	24	100	396
	1999	0	1	6	26	16	63	257	24	96	385
Deep Creek wild	1997	0	0	0	2	1	6	23	2	9	33
	1998	0	0	0	4	3	11	46	4	18	70
	1999	0	0	0	2	1	5	21	2	9	31
Kenai River wild	1997	1	0	0	1	1	4	16	1	6	23
	1998	2	1	4	16	10	39	162	15	61	242
	1999	0	0	1	10	6	24	95	9	35	143
Willow Creek wild	1997	0	0	0	0	0	0	0	0	0	0
	1998	1	0	0	1	1	2	8	1	3	13
	1999	0	0	1	4	2	11	44	4	16	66
Kodiak hatchery	1997	2	1	3	11	7	29	112	10	42	168
	1998	21	0	2	9	5	23	92	9	34	137
	1999	15	0	2	8	5	21	82	7	31	123

[a]Represent the number of tags recovered during random sampling that occurred in the designated sampling areas. Non-random recoveries and recoveries for which a sampling area could not be designated are not included.

Table 12. Number of tags recovered from random sampling, estimates of harvest, standard error, and precision (for a 90% confidence interval) in the KMA fishery of five hatchery groups from Cook Inlet, Cook Inlet hatchery groups summed, and the Kodiak hatchery group, 1997-1999.

Group	Year	Tags	Harvest	SE	CV	Precision
Susitna hatchery	1997	1	14	14	100%	165%
	1998	8	20	6	30%	50%
	1999	4	11	5	45%	75%
	Total	13	45	16	36%	59%
Upper Kenai hatchery	1997	1	4	3	75%	124%
	1998	5	17	10	59%	97%
	1999	6	23	11	48%	79%
	Total	12	44	15	34%	57%
Anchorage hatchery	1997	2	40	28	70%	116%
	1998	0	0	0		
	1999	0	0	0		
	Total	2	40	28	70%	116%
Lower Kenai (Early Run)	1997	0	0	0		
	1998	12	87	27	31%	51%
	1999	6	53	27	51%	84%
	Total	18	140	38	27%	45%
Lower Kenai (Late Run)	1997	0	0	0		
	1998	4	24	11	46%	76%
	1999	0	0	0		
	Total	4	24	11	46%	76%
UCI Hatchery Total	1997	4	58	31	53%	88%
	1998	29	148	32	22%	36%
	1999	16	87	29	33%	55%
	Total	49	293	53	18%	30%
Kodiak hatchery	1997	2	13	9	69%	114%
	1998	21	125	27	22%	36%
	1999	15	93	25	27%	44%
	Total	38	231	38	16%	27%

Table 13. Summary of sampled harvest, harvest and standard error, and contribution to the sampled harvest and standard error by aggregate in the KMA fishery, 1997-1999.

Group	Year	Tags Recovered	Sampled Harvest	Group Harvest	SE	Contribution	SE
west coast Vancouver Island	1997	47	14,661	3,143	814	21%	6%
	1998	80	15,286	4,056	875	27%	6%
	1999	24	15,616	1,545	524	10%	3%
northern and central British Columbia	1997	6	14,661	104	50	1%	<1%
	1998	11	15,286	180	72	1%	<1%
	1999	20	15,616	118	43	1%	<1%
Fraser River spring	1997	4	14,661	115	58	1%	<1%
	1998	5	15,286	43	21	<1%	<1%
	1999	4	15,616	21	11	<1%	<1%
coastal Washington cohorts	1997	3	14,661	20	14	<1%	<1%
	1998	10	15,286	83	33	1%	<1%
	1999	9	15,616	109	50	1%	<1%
northern and central Oregon coastal	1997	3	14,661	19	11	<1%	<1%
	1998	4	15,286	14	8	<1%	<1%
	1999	4	15,616	14	6	<1%	<1%
Willamette River spring	1997	3	14,661	57	33	<1%	<1%
	1998	2	15,286	61	43	<1%	<1%
	1999	35	15,616	187	45	1%	<1%
upper Columbia River summer and fall	1997	2	14,661	90	88	1%	1%
	1998	20	15,286	389	178	3%	1%
	1999	11	15,616	187	98	1%	1%
southeast Alaska inside rearing	1997	1	14,661	43	42	<1%	<1%
	1998	7	15,286	120	52	1%	<1%
	1999	17	15,616	244	74	2%	<1%
southeast Alaska transboundary	1997	0	14,661				
	1998	1	15,286	2	2	<1%	<1%
	1999	1	15,616	1	1	<1%	<1%
All hatchery cohorts[a] (excluding Kodiak group)	1997	73	14,661	3,599	825	25%	6%
	1998	169	15,286	5,215	904	34%	6%
	1999	137	15,616	2,510	545	16%	3%

[a]All random recoveries from designated sampling areas known to have the rearing code of "H" except those recoveries with the site code "BUSKIN R 259-21"; All previously defined groups are a member of this group.

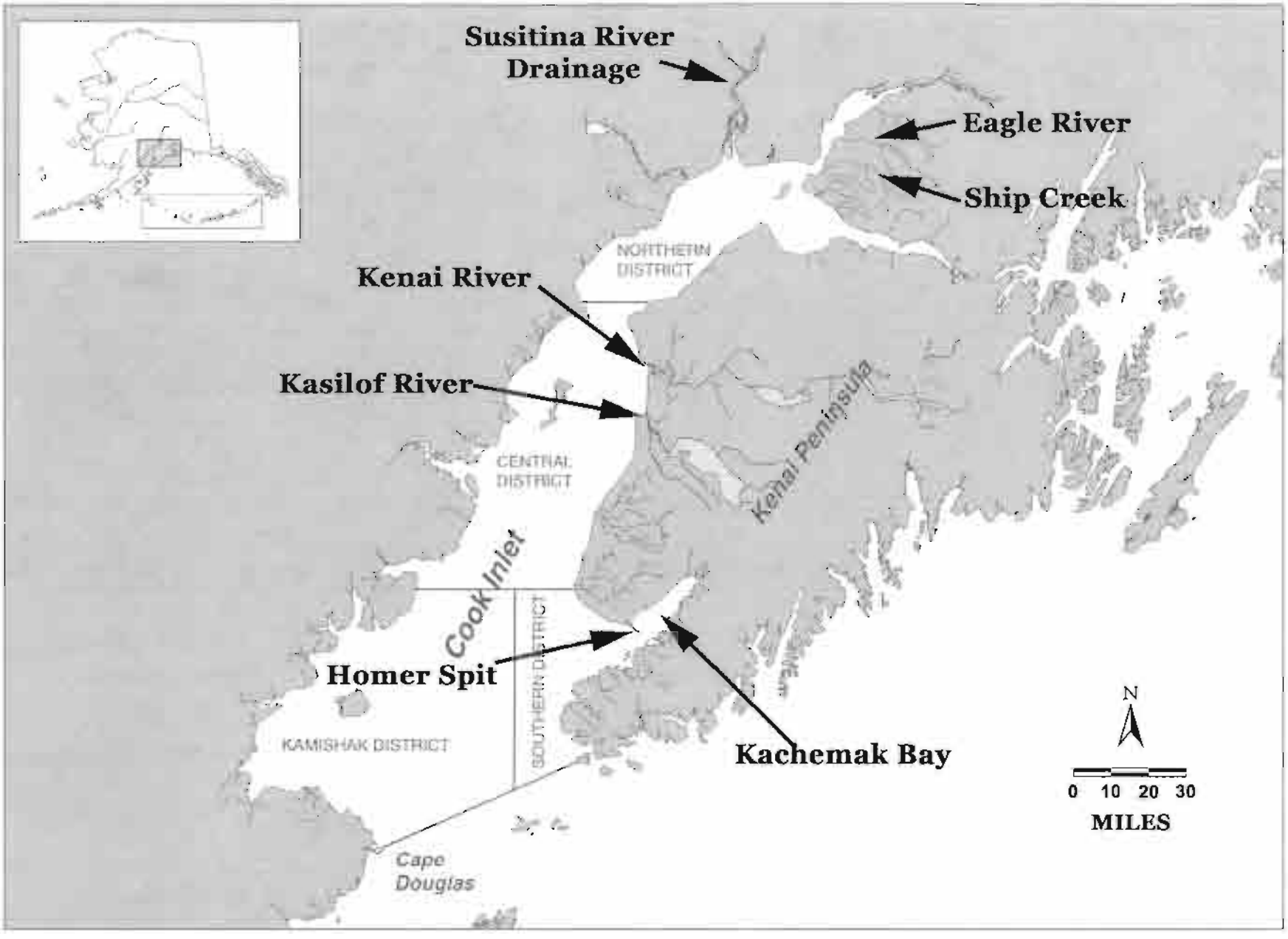

Figure 1. Map of the Cook Inlet area showing locations of chinook salmon streams.

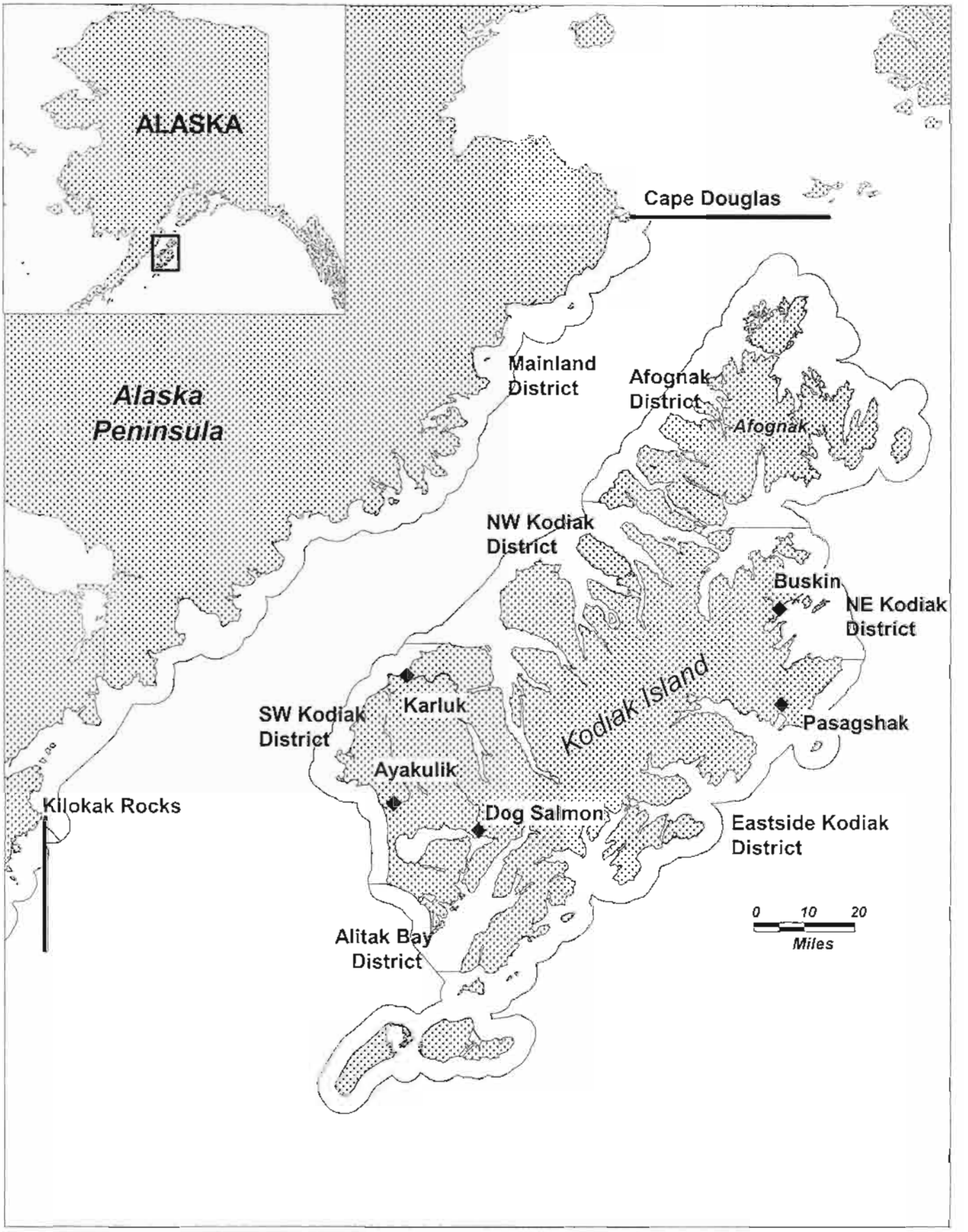

Figure 2. Map of the KMA showing the location of chinook salmon systems (diamonds) and commercial salmon fishing districts.

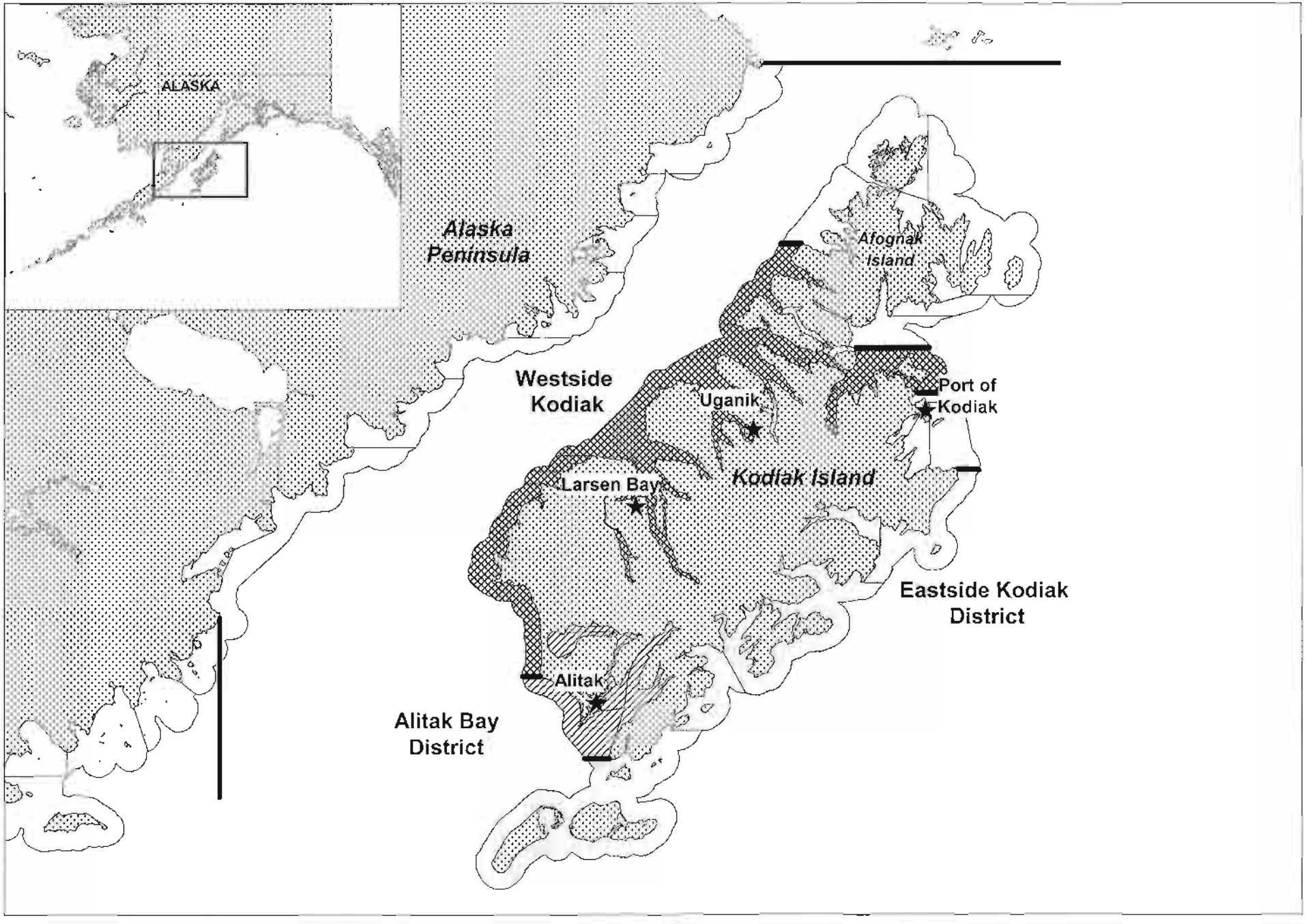

Figure 3. Map of the KMA identifying chinook CWT geographic sampling areas and location of processing facilities.

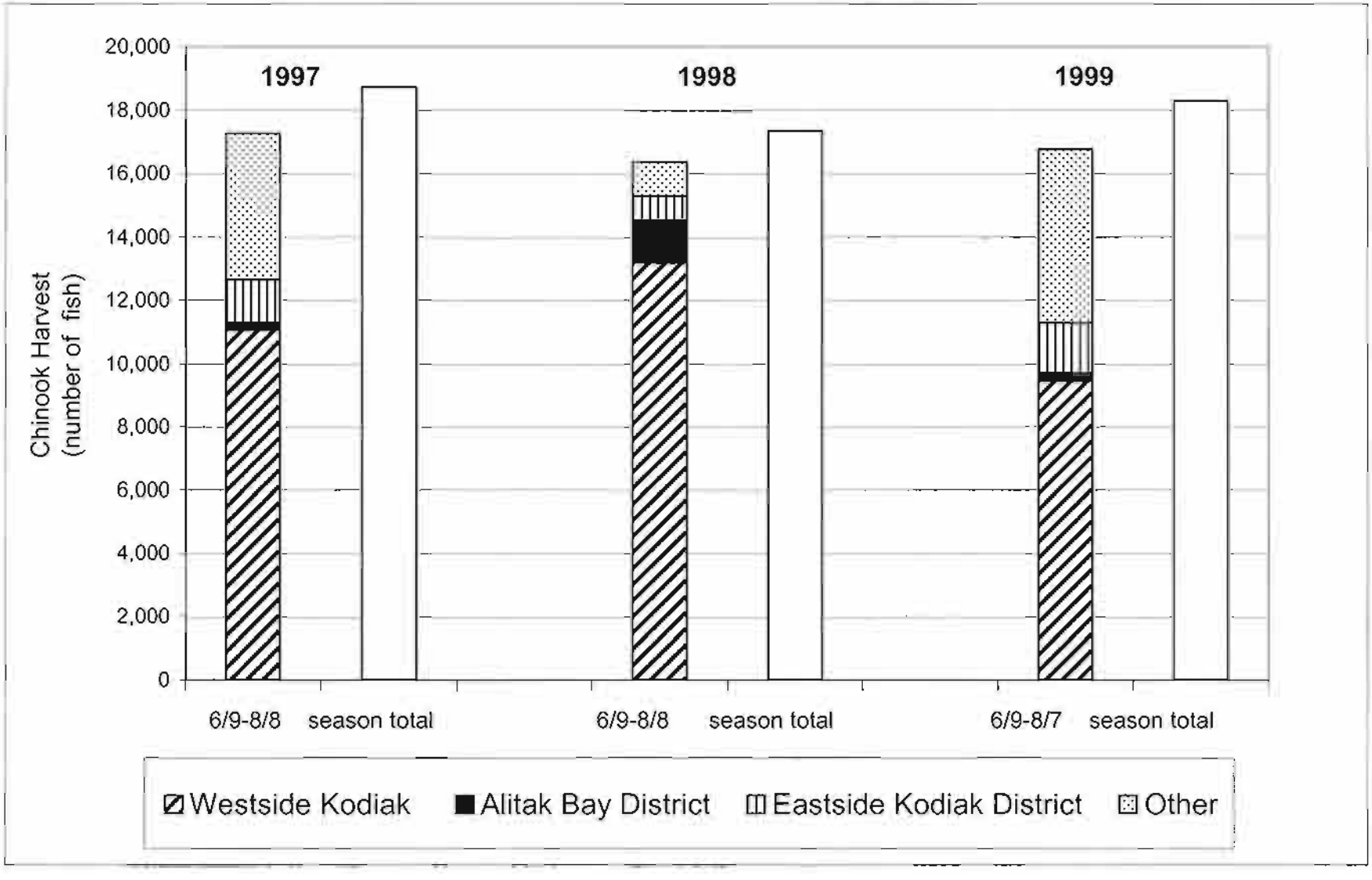

Figure 4. Number of chinook salmon commercially harvested in the KMA during the sampling period, by geographic sampling area, compared to the chinook salmon season total harvest area wide 1997, 1998, and 1999.

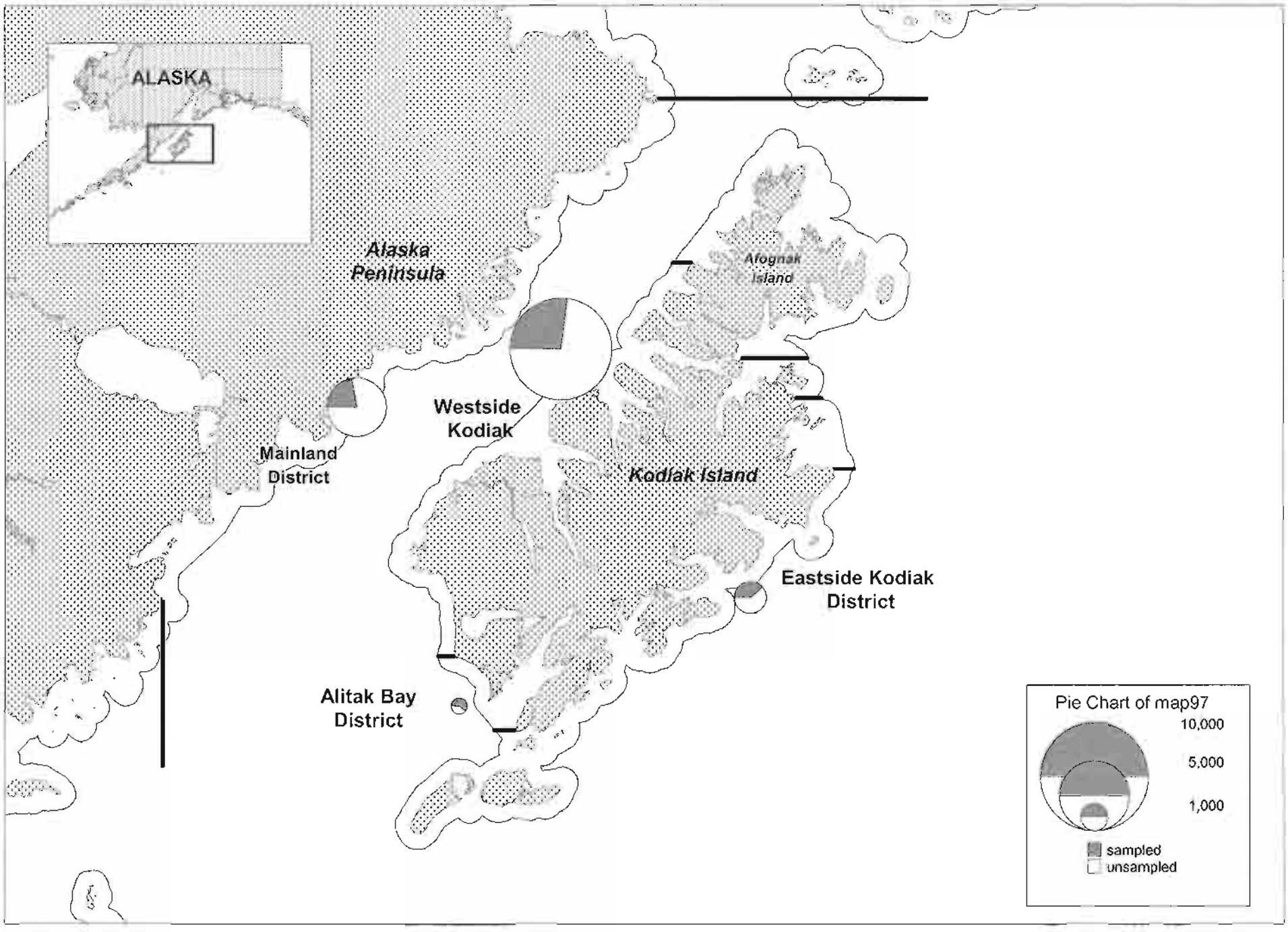

Figure 5. Chinook salmon commercial harvest and CWT sampling effort by designated sampling area within the KMA (through 8/08), 1997.

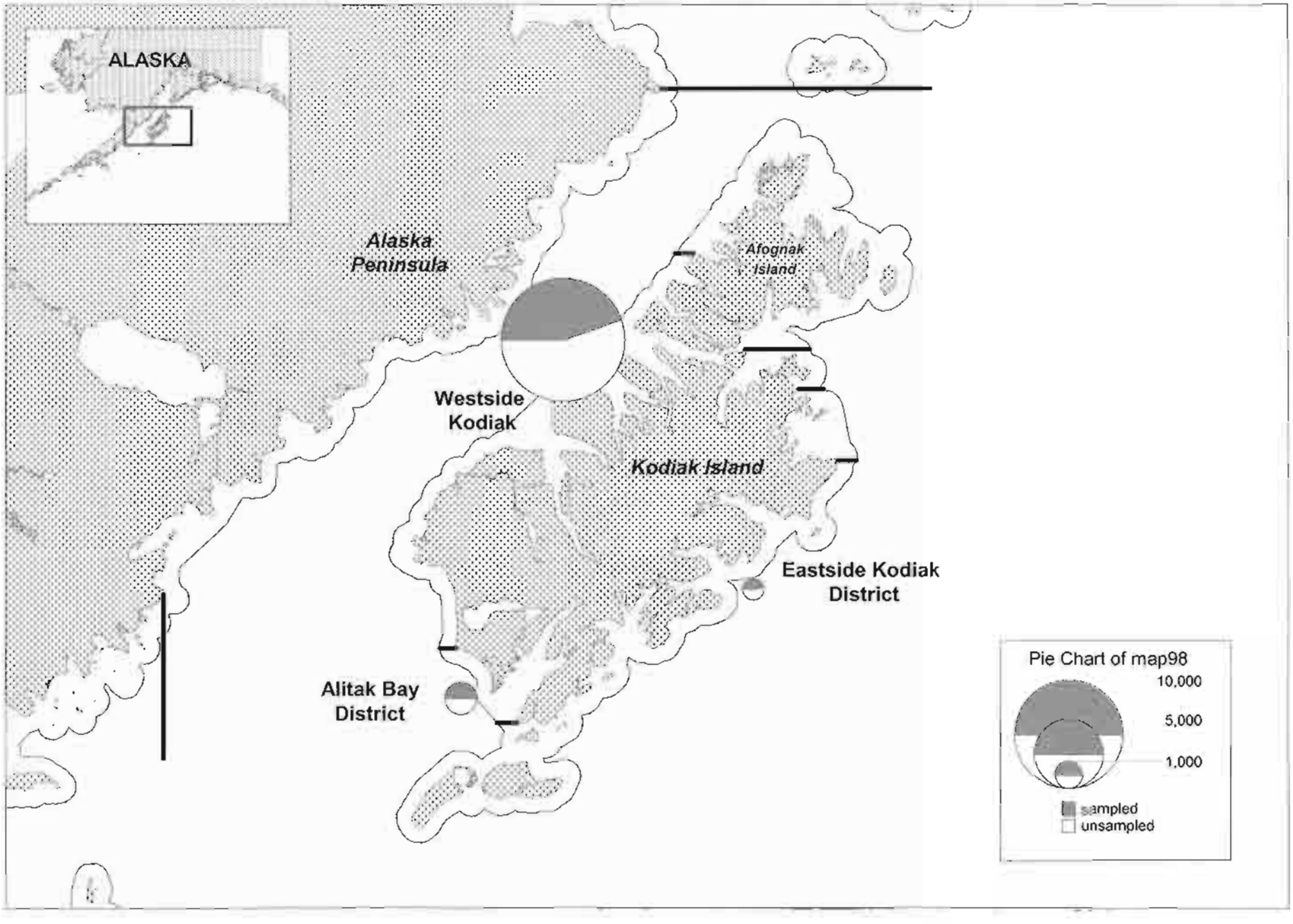

Figure 6. Chinook salmon commercial harvest and CWT sampling effort by designated sampling area within the KMA (through 8/08), 1998.

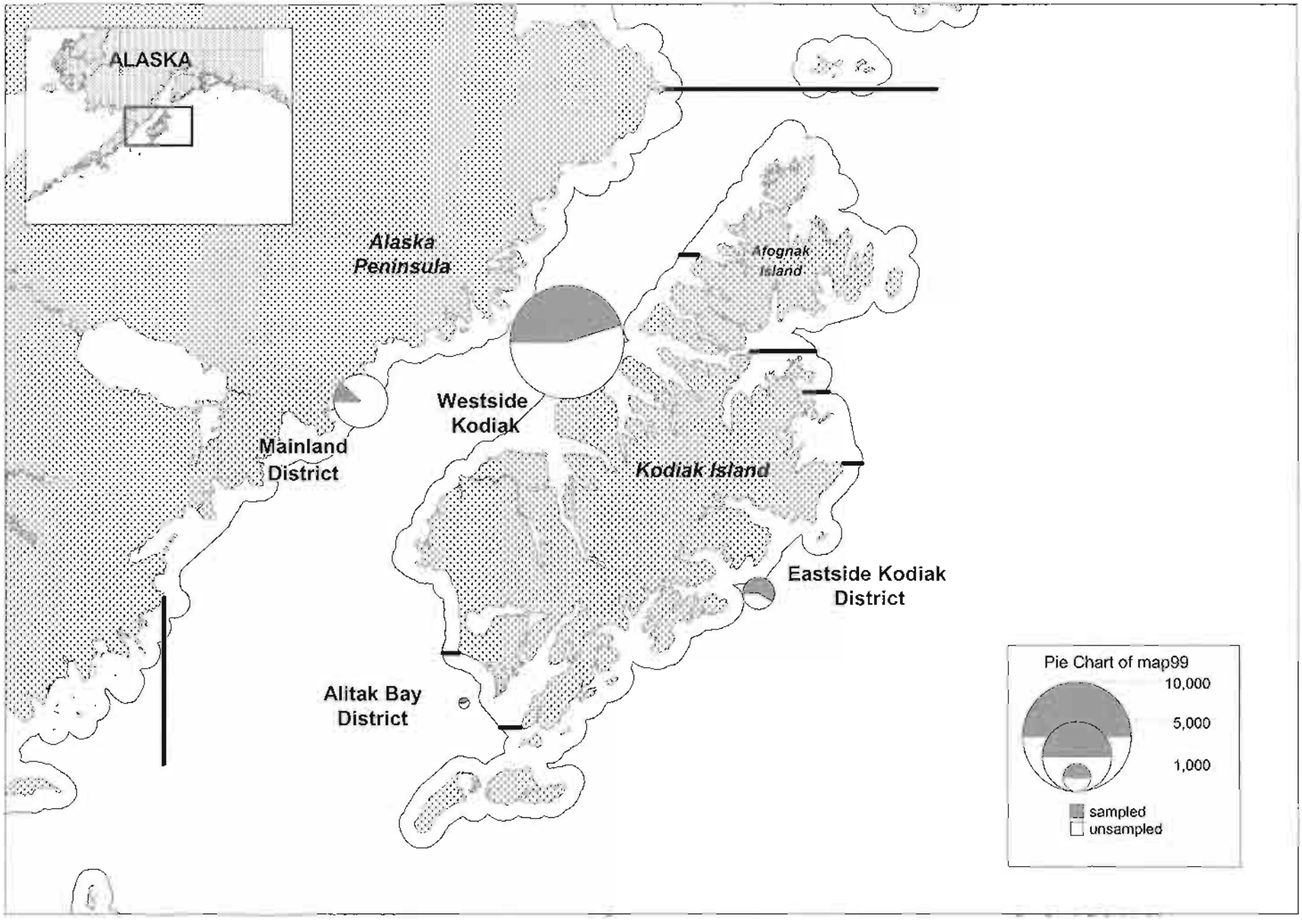

Figure 7. Chinook salmon commercial harvest and CWT sampling effort by designated sampling area within the KMA (through 8/08), 1999.

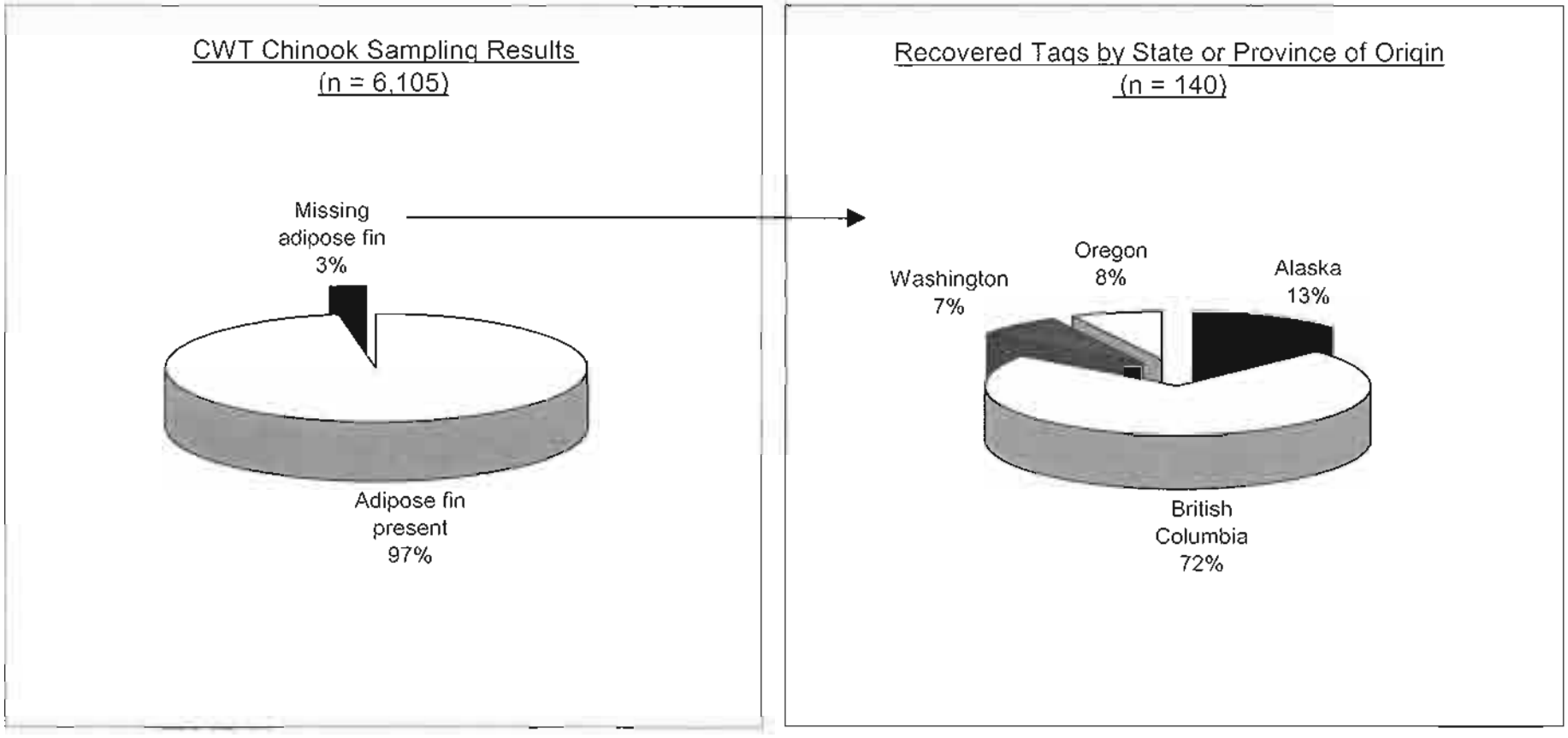

Figure 8. Summary of CWT recoveries and state or province of origin of coded wire tags randomly recovered from chinook salmon sampled in the KMA commercial fishery (through 8 August), 1997.

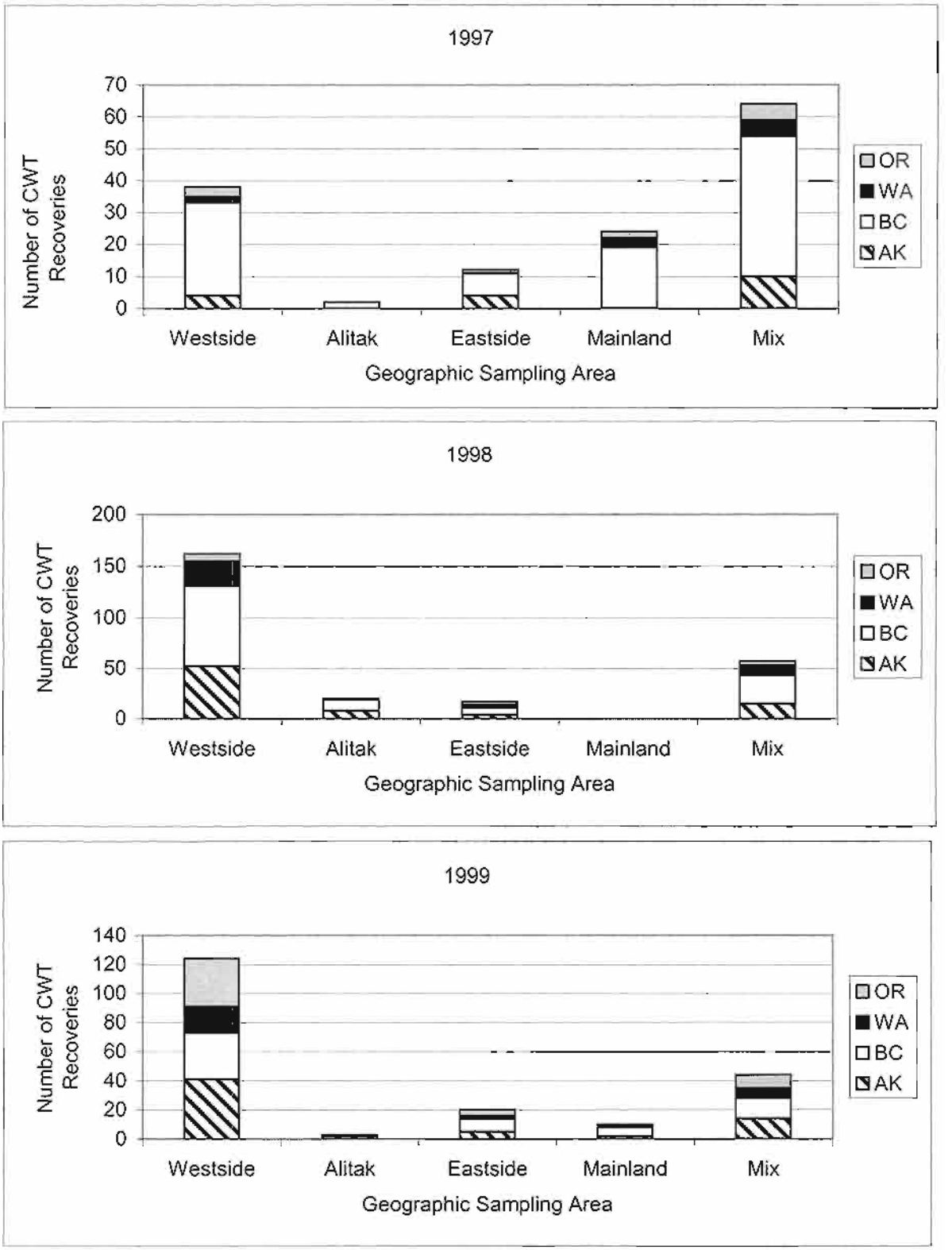

Figure 9. Number of chinook coded wire tags randomly recovered from commercial salmon harvests in each geographic sampling area within the KMA by state or province of origin, 1997, 1998, and 1999.

NOTE: Vertical axes are scaled differently and overall sampling effort differs each year.

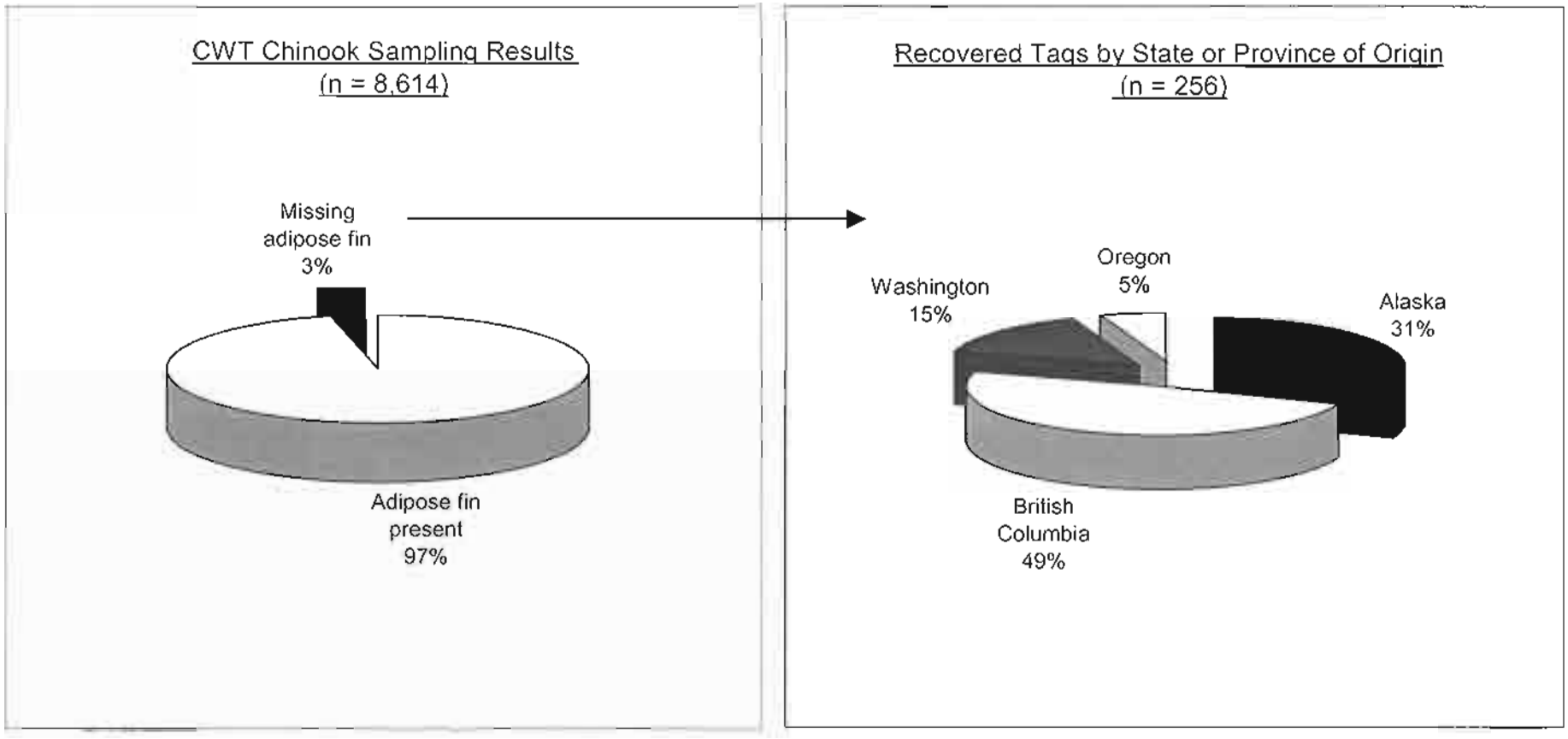

Figure 10. Summary of CWT recoveries and state or province of origin of coded wire tags randomly recovered from chinook salmon sampled in the KMA commercial fishery (through 8 August), 1998.

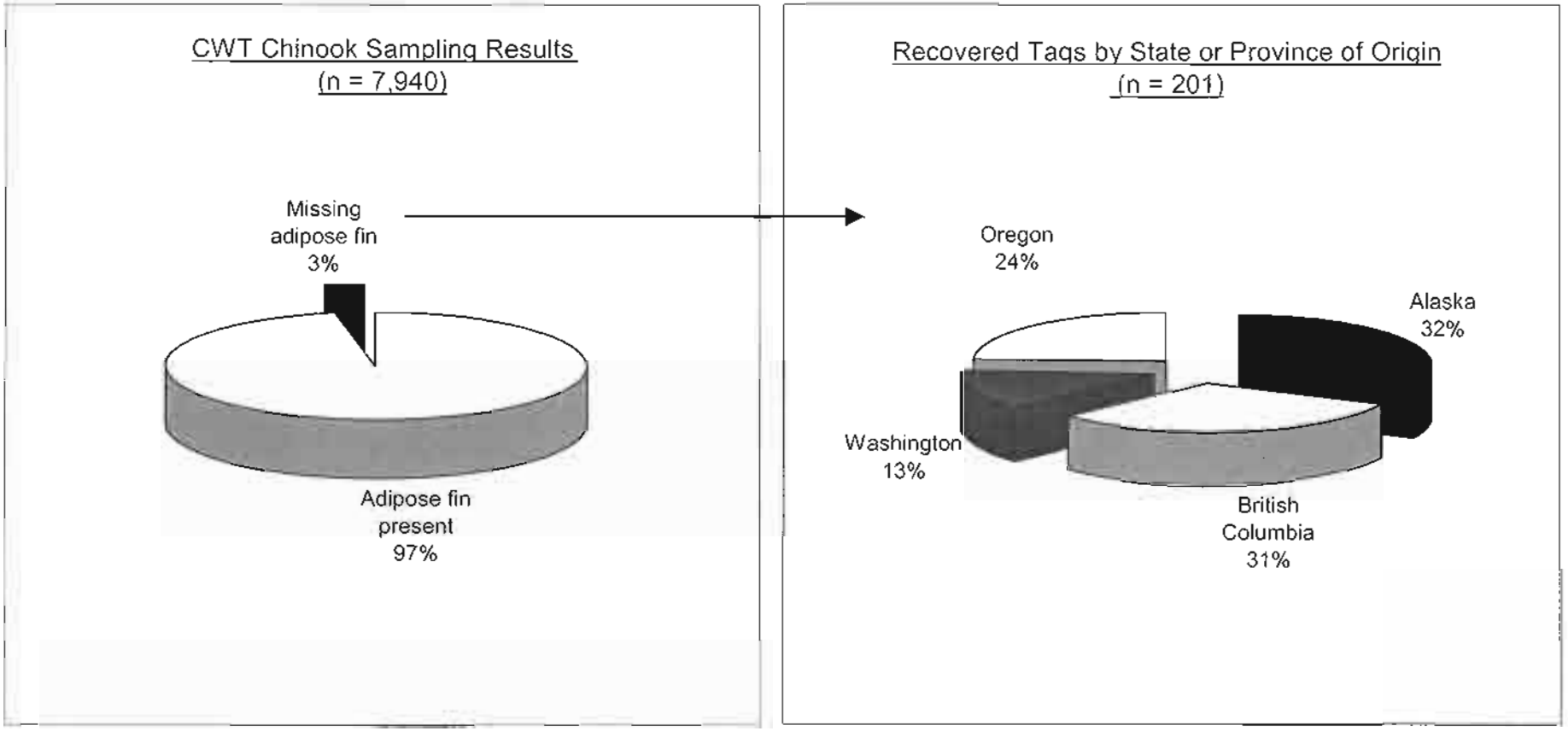

Figure 11. Summary of CWT recoveries and state or province of origin of coded wire tags randomly recovered from chinook salmon sampled in the KMA commercial fishery (through 7 August), 1999.

APPENDIX

Appendix A.1. Expected recoveries of tags, harvest, and CV(harvest) with an assumed sampling rate of 20% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1997.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Susitna	Willow	1993	Deception	39,420	160,194	0.2461	1	6	9	20	122	183	98%	40%	33%
Susitna	Willow	1994	Deception	45,919	177,913	0.2581	1	7	10	19	136	194	97%	37%	31%
Susitna	Willow	1995	Deception	41,965	167,643	0.2503	-	4	7	-	80	140		49%	37%
Susitna	Willow	1996	Deception	47,145	186,918	0.2522	2	19	28	40	377	555	69%	22%	18%
Susitna		All	Deception	174,449	692,668	0.2519	4	36	54	79	714	1,071	49%	16%	13%
Upper Kenai	Ninilchik	1993	Ninilchik	42,960	184,585	0.2327	1	7	10	21	150	215	98%	37%	31%
Upper Kenai	Ninilchik	1994	Ninilchik	45,546	210,513	0.2164	1	7	10	23	162	231	98%	37%	31%
Upper Kenai	Ninilchik	1995	Ninilchik	54,353	54,902	0.9900	1	6	8	5	30	40	90%	37%	32%
Upper Kenai	Ninilchik	1996	Ninilchik	50,866	51,686	0.9841	2	20	31	10	102	157	63%	20%	16%
Upper Kenai	Crooked	1994	Crooked	43,042	224,784	0.1915	1	6	9	26	157	235	98%	40%	33%
Upper Kenai	Crooked	1995	Crooked	38,408	184,049	0.2087	-	4	6	-	96	144		49%	40%
Upper Kenai	Crooked	1996	Crooked	40,196	193,180	0.2081	2	16	24	48	384	577	69%	24%	20%
Upper Kenai		All		315,371	1,103,699	0.2857	8	66	98	134	1,081	1,599	39%	14%	11%
Anchorage	Ship	1994	Ship	42,858	199,830	0.2145	1	6	9	23	140	210	98%	40%	33%
Anchorage	Ship	1995	Ship	38,604	218,487	0.1767	-	4	6	-	113	170		49%	40%
Anchorage	Ship	1996	Ship	40,109	231,444	0.1733	2	16	24	58	462	692	69%	25%	20%
Anchorage	Eagle R	1994	Ship	41,649	107,547	0.3873	1	6	9	13	77	116	96%	39%	32%
Anchorage		All		163,220	757,308	0.2155	4	32	48	94	792	1,188	51%	18%	15%
Kodiak	Buskin	1995	Deception	38,455	78,973	0.4869	-	4	6	-	41	62		48%	39%
Kodiak	Buskin	1996	Deception	40,681	113,220	0.3593	2	16	24	28	223	334	68%	24%	20%
Kodiak		All		79,136	192,193	0.4118	2	20	30	28	264	396	68%	22%	18%
Lower Kenai early	Hal Cove	1994	Homer	21,035	98,872	0.2127	-	3	5	-	71	118		56%	44%
Lower Kenai early	Hal Cove	1995	Homer	36,685	37,577	0.9763	-	4	6	-	20	31		45%	37%
Lower Kenai early	Hal Cove	1996	Homer	39,345	97,729	0.4026	2	16	24	25	199	298	68%	24%	20%
Lower Kenai early	Homer(e)	1994	Homer	25,509	163,963	0.1556	-	4	6	-	129	193		49%	40%
Lower Kenai early	Homer(e)	1995	Homer	40,276	216,026	0.1864	-	4	6	-	107	161		49%	40%
Lower Kenai early	Homer(e)	1996	Homer	39,017	204,085	0.1912	2	16	23	52	418	602	69%	25%	20%
Lower Kenai early	Seldovia	1994	Homer	45,071	107,246	0.4203	1	6	10	12	71	119	96%	39%	30%

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Appendix A.1. (page 2 of 2)

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Lower Kenai early	Seldovia	1995	Homer	40,694	116,165	0.3503	-	4	6	-	57	86		48%	39%
Lower Kenai early	Seldovia	1996	Homer	39,610	118,274	0.3349	2	16	24	30	239	358	68%	24%	20%
Lower Kenai early		All		327,242	1,159,937	0.2821	7	73	110	119	1,311	1,965	39%	12%	10%
Lower Kenai late	Homer(l)	1994	Homer	91,679	156,873	0.5844	1	13	20	9	111	171	94%	26%	21%
Lower Kenai late	Homer(l)	1995	Homer	40,479	123,048	0.3290	-	4	6	-	61	91		48%	39%
Lower Kenai late	Homer(l)	1996	Homer	38,787	108,204	0.3585	2	16	23	28	223	321	68%	24%	20%
Lower Kenai late	Tw Falls(l)	1993	Homer	28,392	100,000	0.2839	-	4	6	-	70	106		49%	40%
Lower Kenai late		All		199,337	488,125	0.4084	3	37	55	36	466	689	57%	16%	13%
All Areas				1,258,755	4,393,930	0.2865	28	264	395	490	4,628	6,908	20%	7%	5%

[a] Theta is the proportion of total release that is marked.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.2. Expected recoveries of tags, harvest, and CV(harvest) with an assumed sampling rate of 20% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1998.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Susitna	Willow	1994	Deception	45,921	177,913	0.2581	1	7	10	19	136	194	97%	37%	31%
Susitna	Willow	1995	Deception	46,256	167,643	0.2759	1	7	10	18	127	181	97%	37%	31%
Susitna	Willow	1996	Deception	47,145	186,918	0.2522	-	5	7	-	99	139		44%	37%
Susitna	Willow	1997	Deception	207,973	209,644	0.9920	8	83	125	40	418	630	32%	10%	8%
Susitna		All	Deception	347,295	742,118	0.4680	10	102	152	78	780	1,144	37%	12%	10%
Upper Kenai	Ninilchik	1994	Ninilchik	45,535	210,513	0.2163	1	7	10	23	162	231	98%	37%	31%
Upper Kenai	Ninilchik	1995	Ninilchik	54,115	54,662	0.9900	1	8	12	5	40	61	90%	32%	26%
Upper Kenai	Ninilchik	1996	Ninilchik	50,866	51,686	0.9841	1	5	8	5	25	41	90%	40%	32%
Upper Kenai	Ninilchik	1997	Ninilchik	50,292	50,968	0.9867	2	20	30	10	101	152	63%	20%	16%
Upper Kenai	Crooked	1994	Crooked	43,034	224,784	0.1914	1	7	10	26	183	261	98%	37%	31%
Upper Kenai	Crooked	1995	Homer	38,420	184,049	0.2087	1	6	8	24	144	192	98%	40%	35%
Upper Kenai	Crooked	1996	Homer	40,196	193,180	0.2081	-	4	6	-	96	144		49%	40%
Upper Kenai	Crooked	1997	Homer	39,022	223,201	0.1748	2	16	23	57	458	658	69%	25%	20%
Upper Kenai		All		361,480	1,193,043	0.3030	9	73	107	151	1,209	1,739	39%	14%	11%
Anchorage	Ship	1994	Ship	42,684	199,830	0.2136	1	6	10	23	140	234	98%	40%	31%
Anchorage	Ship	1995	Ship	38,570	218,487	0.1765	1	6	8	28	170	227	98%	40%	35%
Anchorage	Ship	1996	Ship	40,109	231,444	0.1733	-	4	6	-	115	173		49%	40%
Anchorage	Ship	1997	Ship	40,319	326,371	0.1235	2	16	24	81	648	971	70%	25%	20%
Anchorage		All		161,682	976,132	0.1656	4	32	48	133	1,073	1,605	51%	18%	15%
Kodiak	Buskin	1995	Deception	41,078	84,349	0.4870	1	6	9	10	62	92	95%	39%	32%
Kodiak	Buskin	1996	Deception	40,681	113,220	0.3593	-	4	6	-	56	83		48%	39%
Kodiak		All		81,759	197,569	0.4138	1	10	15	10	117	176	95%	31%	25%
Lower Kenai early	Hal Cove	1994	Homer	21,038	98,872	0.2128	-	3	5	-	70	117		56%	44%
Lower Kenai early	Hal Cove	1995	Homer	36,700	37,577	0.9767	1	5	8	5	26	41	90%	40%	32%
Lower Kenai early	Hal Cove	1996	Homer	39,345	97,729	0.4026	-	4	6	-	50	75		48%	39%
Lower Kenai early	Hal Cove	1997	Homer	39,487	78,133	0.5054	2	16	24	20	158	237	67%	24%	19%
Lower Kenai early	Homer(e)	1994	Homer	25,615	163,963	0.1562	-	4	6	-	128	192		49%	40%
Lower Kenai early	Homer(e)	1995	Homer	40,291	216,026	0.1865	1	6	9	27	161	241	98%	40%	33%
Lower Kenai early	Homer(e)	1996	Homer	39,017	204,085	0.1912	-	4	6	-	105	157		49%	40%
Lower Kenai early	Homer(e)	1997	Homer	38,810	217,733	0.1782	2	16	23	56	449	645	69%	25%	20%
Lower Kenai early	Seldovia	1994	Crooked	45,439	107,246	0.4237	1	7	10	12	83	118	96%	36%	30%

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Appendix A.2. (page 2 of 2)

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Lower Kenai early	Seldovia	1995	Homer	40,678	116,165	0.3502	1	6	9	14	86	129	96%	39%	32%
Lower Kenai early	Seldovia	1996	Ninilchik	39,610	118,274	0.3349	-	4	6	-	60	90		48%	39%
Lower Kenai early	Seldovia	1997	Ninilchik	39,834	103,757	0.3839	2	16	24	26	208	313	68%	24%	20%
Lower Kenai early		All		445,864	1,559,560	0.2859	10	91	136	160	1,583	2,355	34%	11%	9%
Lower Kenai late	TwFalls(I)	1993	Kasilof	28,392	100,000	0.2839	-	-	-	-	-	-		0%	0%
Lower Kenai late	Homer(I)	1994	Kasilof	22,383	56,920	0.3932	-	3	5	-	38	64		55%	43%
Lower Kenai late	Homer(I)	1995	Homer	40,466	123,048	0.3289	1	6	9	15	91	137	97%	39%	32%
Lower Kenai late	Homer(I)	1996	Homer	38,787	108,204	0.3585	-	4	6	-	56	84		48%	39%
Lower Kenai late	Homer(I)	1997	Homer	39,264	100,933	0.3890	2	16	24	26	206	308	68%	24%	20%
Lower Kenai late		All		169,292	489,105	0.3461	3	29	44	41	391	593	56%	18%	15%
All Areas				1,526,691	5,044,307	0.3027	37	333	496	572	5,098	7,528	19%	6%	5%

[a] Theta is the proportion of total release that is marked.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.3. Expected recoveries of tags, harvest, and CV(harvest) with an assumed sampling rate of 20% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1999.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Susitna	Willow	1995	Deception	46,256	167,643	0.2759	1	7	11	18	127	199	97%	37%	29%
Susitna	Willow	1996	Deception	47,145	186,918	0.2522	1	7	10	20	139	198	97%	37%	31%
Susitna	Willow	1997	Deception	207,973	209,644	0.9920	2	22	32	10	111	161	63%	19%	16%
Susitna	Willow	1998	Deception	195,615	197,392	0.9910	8	78	117	40	394	590	32%	10%	8%
Susitna		All	Deception	496,989	761,597	0.6526	12	114	170	88	770	1,149	34%	11%	9%
Upper Kenai	Ninilchik	1995	Ninilchik	54,115	54,662	0.9900	1	8	12	5	40	61	90%	32%	26%
Upper Kenai	Ninilchik	1996	Ninilchik	50,866	51,686	0.9841	1	7	11	5	36	56	90%	34%	27%
Upper Kenai	Ninilchik	1997	Ninilchik	50,292	50,968	0.9867	1	5	8	5	25	41	90%	40%	32%
Upper Kenai	Ninilchik	1998	Ninilchik	47,480	48,798	0.9730	2	19	28	10	98	144	63%	21%	17%
Upper Kenai	Crooked	1995	Homer	38,420	184,049	0.2087	1	6	9	24	144	216	98%	40%	33%
Upper Kenai	Crooked	1996	Homer	40,196	193,180	0.2081	1	6	9	24	144	216	98%	40%	33%
Upper Kenai	Crooked	1997	Homer	39,022	223,201	0.1748	-	4	6	-	114	172		49%	40%
Upper Kenai	Crooked	1998	Homer	42,610	137,338	0.3103	2	17	26	32	274	419	68%	23%	19%
Upper Kenai		All		363,001	943,882	0.3846	9	72	109	106	875	1,323	39%	14%	11%
Anchorage	Ship	1995	Ship	38,570	218,487	0.1765	1	6	9	28	170	255	98%	40%	33%
Anchorage	Ship	1996	Ship	40,109	231,444	0.1733	1	6	9	29	173	260	98%	40%	33%
Anchorage	Ship	1997	Ship	40,319	326,371	0.1235	-	4	6	-	162	243		49%	40%
Anchorage	Ship	1998	Ship	21,501	122,810	0.1751	1	9	13	29	257	371	98%	33%	27%
Anchorage		All		140,499	899,112	0.1563	3	25	37	86	762	1,129	57%	20%	16%
Kodiak	Buskin	1995	Deception	41,078	84,349	0.4870	1	6	9	10	62	92	95%	39%	32%
Kodiak	Buskin	1996	Deception	40,681	113,220	0.3593	-	4	6	-	56	83		48%	39%
Kodiak		All		81,759	197,569	0.4138	1	10	15	10	117	176	95%	31%	25%
Lower Kenai early	Hal Cove	1995	Homer	36,700	37,577	0.9767	1	6	8	5	31	41	90%	37%	32%
Lower Kenai early	Hal Cove	1996	Homer	39,345	97,729	0.4026	1	6	8	12	75	99	96%	39%	34%
Lower Kenai early	Hal Cove	1997	Homer	39,487	78,133	0.5054	-	4	6	-	40	59		47%	39%
Lower Kenai early	Hal Cove	1998	Homer	38,014	65,893	0.5769	2	15	23	17	130	199	67%	24%	20%
Lower Kenai early	Homer(e)	1995	Homer	40,291	216,026	0.1865	1	6	9	27	161	241	98%	40%	33%
Lower Kenai early	Homer(e)	1996	Homer	39,017	204,085	0.1912	1	6	8	26	157	209	98%	40%	35%
Lower Kenai early	Homer(e)	1997	Homer	38,810	217,733	0.1782	-	4	6	-	112	168		49%	40%
Lower Kenai early	Homer(e)	1998	Homer	39,652	177,730	0.2231	2	16	24	45	359	538	69%	24%	20%
Lower Kenai early	Seldovia	1995	Homer	40,678	116,165	0.3502	1	6	9	14	86	129	96%	39%	32%
Lower Kenai early	Seldovia	1996	Ninilchik	39,610	118,274	0.3349	1	6	9	15	90	134	97%	39%	32%

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Appendix A.3. (page 2 of 2)

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Lower Kenai early	Seldovia	1997	Ninilchik	39,834	103,757	0.3839	-	4	6	-	52	78		48%	39%
Lower Kenai early	Seldovia	1998	Ninilchik	40,125	69,461	0.5777	2	16	24	17	138	208	67%	24%	19%
Lower Kenai early		All		471,563	1,502,563	0.3138	12	95	140	179	1,429	2,105	31%	11%	9%
Lower Kenai late	Homer(I)	1995	Homer	40,466	123,048	0.3289	1	6	9	15	91	137	97%	39%	32%
Lower Kenai late	Homer(I)	1996	Homer	38,787	108,204	0.3585	1	6	8	14	84	112	96%	39%	34%
Lower Kenai late	Homer(I)	1997	Homer	39,264	100,933	0.3890	-	4	6	-	51	77		48%	39%
Lower Kenai late	Homer(I)	1998	Homer	39,997	112,100	0.3568	2	16	24	28	224	336	68%	24%	20%
Lower Kenai late		All		158,514	444,285	0.3568	4	32	47	57	451	662	48%	17%	14%
All Areas				1,671,644	4,635,788	0.3606	41	344	512	526	4,349	6,460	18%	6%	5%

[a] Theta is the proportion of total release that is marked.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.4. Expected recoveries of tags, harvest, and CV(harvest) with an assumed sampling rate of 20% by selected cohorts of wild chinook salmon in the KMA fishery during 1997.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Cohort	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Deep Creek	Smolt	1994	Wild	9,611	N/A	0.0810	-	1	2	-	62	123		100%	71%
Deep Creek	Smolt	1995	Wild	8,394	N/A	0.0960	-	1	1	-	52	52		100%	100%
Deep Creek	Smolt	1996	Wild	4,608	N/A	0.0550	-	2	3	-	182	273		71%	58%
Deep Creek		All		22,613	N/A		-	4	6	-	296	448		51%	42%
Kenai River	Fingerling	1993	Wild	152,397	N/A	0.0120	-	3	4	-	1,250	1,667		58%	50%
Kenai River	Fingerling	1994	Wild	88,109	N/A	0.0720	-	-	-	-	-	-		-	-
Kenai River	Fingerling	1995	Wild	58,741	N/A	0.0200	-	2	4	-	500	1,000		-	-
Kenai River	Smolt	1996	Wild	6,532	N/A	0.0002	-	-	-	-	-	-		-	-
Kenai River		All		305,779	N/A		-	3	4	-	1,250	1,667		58%	50%

[a] Theta is the proportion of total release that is marked. For wild releases this is estimated from adult returns.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.5. Expected recoveries of tags, harvest, and CV(harvest) with an assumed sampling rate of 20% by selected cohorts of wild chinook salmon in the KMA fishery during 1998.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Cohort	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Deep Creek	Smolt	1994	Wild	9,611	N/A	0.0810	-	1	2	-	62	123		100%	71%
Deep Creek	Smolt	1995	Wild	8,394	N/A	0.0960	-	1	2	-	52	104		100%	71%
Deep Creek	Smolt	1996	Wild	4,608	N/A	0.0550	-	-	1	-	-	91		0%	100%
Deep Creek	Smolt	1997	Wild	4,970	N/A	0.0550	-	2	3	-	182	273		71%	58%
Deep Creek		All		27,583	N/A	N/A	-	4	8	-	296	591		51%	36%
Kenai River	Fingerling	1993	Wild	152,397	N/A	0.0120	-	3	5	-	1,250	2,083		58%	45%
Kenai River	Fingerling	1994	Wild	88,109	N/A	0.0720	-	1	2	-	69	139		100%	71%
Kenai River	Fingerling	1995	Wild	58,741	N/A	0.0200	-	-	-	-	-	-		0%	0%
Kenai River	Smolt	1996	Wild	6,532	N/A	0.0002	-	-	-	-	-	-		0%	0%
Kenai River	Smolt	1997	Wild	32,205	N/A	0.0720	1	13	19	69	903	1,319	100%	28%	23%
Kenai River		All		337,984	N/A	N/A	1	17	26	69	2,222	3,542	100%	35%	28%
Willow Creek	Fingerling	1996	Wild	46,206	N/A	0.0167	-	1	1	-	300	300		100%	100%
Willow Creek		All		46,206	N/A	N/A	-	1	1	-	300	300		100%	100%

[a] Theta is the proportion of total release that is marked. For wild releases this is estimated from adult returns.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.6. Expected recoveries of tags, harvest, and CV(harvest) with an assumed sampling rate of 20% by selected cohorts of wild chinook salmon in the KMA fishery during 1999.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Cohort	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Deep Creek	Smolt	1994	Wild	9,611	N/A	0.0810	-	-	-	-	-	-			
Deep Creek	Smolt	1995	Wild	8,394	N/A	0.0960	-	1	2	-	52	104		100%	71%
Deep Creek	Smolt	1996	Wild	4,608	N/A	0.0550	-	1	1	-	91	91		0%	100%
Deep Creek	Smolt	1997	Wild	4,970	N/A	0.0550	-	1	1	-	91	91		100%	100%
Deep Creek		All		27,583	N/A	N/A	-	3	4	-	234	286		59%	52%
Kenai River	Fingerling	1993	Wild	152,397	N/A	0.0120	-	-	-	-	-	-			
Kenai River	Fingerling	1994	Wild	88,109	N/A	0.0720	-	2	3	-	139	208		71%	58%
Kenai River	Fingerling	1995	Wild	58,741	N/A	0.0200	-	1	1	-	250	250		0%	0%
Kenai River	Smolt	1996	Wild	6,532	N/A	0.0002	-	1	2	-	25,000	50,000		0%	0%
Kenai River	Smolt	1997	Wild	32,205	N/A	0.0100	-	1	2	-	500	1,000		100%	71%
Kenai River	Smolt	1998	Wild	17,329	N/A	0.0050	1	7	10	1,000	7,000	10,000	100%	38%	32%
Kenai River		All		355,313	N/A	N/A	1	12	18	1,000	32,889	61,458	100%	76%	58%
Willow Creek	Fingerling	1996	Wild	46,206	N/A	0.0167	-	-	1	-	-	300			100%
Willow Creek	Fingerling	1997	Wild	123,701	N/A	0.0500	-	5	7	-	500	700		45%	38%
Willow Creek		All		169,907	N/A	N/A	-	5	8	-	500	1,000		45%	40%

[a] Theta is the proportion of total release that is marked. For wild releases this is estimated from adult returns.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.7. Expected recoveries of tags, harvest, and CV(harvest) with an actual sampling rate of 28% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1997.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Susitna	Willow	1993	Deception	39,420	160,194	0.2461	1	8	12	15	117	176	97%	34%	28%
Susitna	Willow	1994	Deception	45,919	177,913	0.2581	1	9	14	14	126	196	96%	32%	26%
Susitna	Willow	1995	Deception	41,965	167,643	0.2503	1	6	9	14	87	130	96%	39%	32%
Susitna	Willow	1996	Deception	47,145	186,918	0.2522	3	26	39	43	373	559	56%	19%	15%
Susitna		All	Deception	174,449	692,668	0.2519	6	49	74	86	703	1,061	39%	14%	11%
Upper Kenai	Ninilchik	1993	Ninilchik	42,960	184,585	0.2327	1	9	14	16	140	217	97%	32%	26%
Upper Kenai	Ninilchik	1994	Ninilchik	45,546	210,513	0.2164	1	9	14	17	150	234	97%	32%	26%
Upper Kenai	Ninilchik	1995	Ninilchik	54,353	54,902	0.9900	1	8	12	4	29	44	85%	30%	25%
Upper Kenai	Ninilchik	1996	Ninilchik	50,866	51,686	0.9841	3	28	42	11	103	154	49%	16%	13%
Upper Kenai	Crooked	1994	Crooked	43,042	224,784	0.1915	1	9	13	19	170	245	97%	32%	27%
Upper Kenai	Crooked	1995	Crooked	38,408	184,049	0.2087	1	6	8	17	104	139	97%	40%	34%
Upper Kenai	Crooked	1996	Crooked	40,196	193,180	0.2081	2	22	33	35	382	573	69%	21%	17%
Upper Kenai		All		315,371	1,103,699	0.2857	10	91	136	118	1,078	1,606	35%	12%	10%
Anchorage	Ship	1994	Ship	42,858	199,830	0.2145	1	9	13	17	152	219	97%	32%	27%
Anchorage	Ship	1995	Ship	38,604	218,487	0.1767	1	6	8	20	123	164	98%	40%	34%
Anchorage	Ship	1996	Ship	40,109	231,444	0.1733	2	22	33	42	459	688	69%	21%	17%
Anchorage	Eagle R	1994	Ship	41,649	107,547	0.3873	1	8	12	9	75	112	94%	33%	27%
Anchorage		All		163,220	757,308	0.2155	5	45	66	88	808	1,183	45%	15%	12%
Kodiak	Buskin	1995	Deception	38,455	78,973	0.4869	1	6	8	7	45	59	93%	38%	33%
Kodiak	Buskin	1996	Deception	40,681	113,220	0.3593	2	23	34	20	231	342	67%	20%	16%
Kodiak		All		79,136	192,193	0.4118	3	29	42	28	276	401	55%	18%	15%
Lower Kenai early	Hal Cove	1994	Homer	21,035	98,872	0.2127	-	4	6	-	68	102		49%	40%
Lower Kenai early	Hal Cove	1995	Homer	36,685	37,577	0.9763	1	5	8	4	19	30	85%	38%	30%
Lower Kenai early	Hal Cove	1996	Homer	39,345	97,729	0.4026	2	22	33	18	197	296	67%	20%	16%
Lower Kenai early	Homer(e)	1994	Homer	25,509	163,963	0.1556	1	5	8	23	116	186	98%	44%	35%
Lower Kenai early	Homer(e)	1995	Homer	40,276	216,026	0.1864	1	6	9	19	116	174	97%	40%	32%
Lower Kenai early	Homer(e)	1996	Homer	39,017	204,085	0.1912	2	22	32	38	416	605	69%	21%	17%
Lower Kenai early	Seldovia	1994	Homer	45,071	107,246	0.4203	1	9	13	9	77	112	94%	31%	26%
Lower Kenai early	Seldovia	1995	Homer	40,694	116,165	0.3503	1	6	9	10	62	93	95%	39%	32%
Lower Kenai early	Seldovia	1996	Homer	39,610	118,274	0.3349	2	22	33	22	237	356	67%	20%	17%
Lower Kenai early		All		327,242	1,159,937	0.2821	11	101	151	143	1,309	1,954	32%	10%	8%

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Appendix A.7. (page 2 of 2)

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Lower Kenai late	Homer(l)	1994	Homer	91,679	156,873	0.5844	2	18	27	12	111	167	65%	22%	18%
Lower Kenai late	Homer(l)	1995	Homer	40,479	123,048	0.3290	1	6	9	11	66	99	95%	39%	32%
Lower Kenai late	Homer(l)	1996	Homer	38,787	108,204	0.3585	2	21	32	20	212	323	67%	21%	17%
Lower Kenai late	Tw Falls(l)	1993	Homer	28,392	100,000	0.2839	1	6	9	13	76	115	96%	39%	32%
Lower Kenai late		All		199,337	488,125	0.4084	6	51	77	56	465	703	40%	14%	11%
All Areas				1,258,755	4,393,930	0.2865	41	366	546	519	4,638	6,908	16%	5%	4%

[a] Theta is the proportion of total release that is marked.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.8. Expected recoveries of tags, harvest, and CV(harvest) with an actual sampling rate of 45% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1998.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Susitna	Willow	1994	Deception	45,921	177,913	0.2581	2	16	24	17	137	205	66%	23%	19%
Susitna	Willow	1995	Deception	46,256	167,643	0.2759	2	15	23	16	120	184	66%	24%	20%
Susitna	Willow	1996	Deception	47,145	186,918	0.2522	1	11	17	9	96	149	94%	28%	23%
Susitna	Willow	1997	Deception	207,973	209,644	0.9920	19	188	282	42	419	628	17%	5%	4%
Susitna		All	Deception	347,295	742,118	0.4680	24	230	346	84	772	1,167	23%	7%	6%
Upper Kenai	Ninilchik	1994	Ninilchik	45,535	210,513	0.2163	2	16	23	20	163	235	67%	24%	20%
Upper Kenai	Ninilchik	1995	Ninilchik	54,115	54,662	0.9900	2	18	26	4	40	58	53%	18%	15%
Upper Kenai	Ninilchik	1996	Ninilchik	50,866	51,686	0.9841	1	12	18	2	27	40	74%	21%	18%
Upper Kenai	Ninilchik	1997	Ninilchik	50,292	50,968	0.9867	5	46	68	11	103	152	33%	11%	9%
Upper Kenai	Crooked	1994	Crooked	43,034	224,784	0.1914	1	15	22	12	173	254	96%	25%	20%
Upper Kenai	Crooked	1995	Homer	38,420	184,049	0.2087	1	13	19	11	138	201	95%	26%	22%
Upper Kenai	Crooked	1996	Homer	40,196	193,180	0.2081	1	9	14	11	96	149	95%	32%	25%
Upper Kenai	Crooked	1997	Homer	39,022	223,201	0.1748	4	35	53	51	442	670	48%	16%	13%
Upper Kenai		All		361,480	1,193,043	0.3030	17	164	243	122	1,182	1,759	28%	9%	7%
Anchorage	Ship	1994	Ship	42,684	199,830	0.2136	1	15	22	10	155	228	95%	25%	20%
Anchorage	Ship	1995	Ship	38,570	218,487	0.1765	1	13	19	13	163	238	96%	27%	22%
Anchorage	Ship	1996	Ship	40,109	231,444	0.1733	1	9	14	13	115	179	96%	32%	26%
Anchorage	Ship	1997	Ship	40,319	326,371	0.1235	4	36	55	72	644	984	49%	16%	13%
Anchorage		All		161,682	976,132	0.1656	7	73	110	107	1,077	1,628	37%	12%	9%
Kodiak	Buskin	1995	Deception	41,078	84,349	0.4870	1	13	20	5	59	91	88%	24%	20%
Kodiak	Buskin	1996	Deception	40,681	113,220	0.3593	1	10	14	6	61	86	92%	29%	24%
Kodiak		All		81,759	197,569	0.4138	2	23	34	11	120	177	65%	19%	16%
Lower Kenai early	Hal Cove	1994	Homer	21,038	98,872	0.2128	1	7	11	10	73	114	95%	36%	29%
Lower Kenai early	Hal Cove	1995	Homer	36,700	37,577	0.9767	1	12	18	2	27	41	75%	22%	18%
Lower Kenai early	Hal Cove	1996	Homer	39,345	97,729	0.4026	1	9	14	5	49	77	90%	30%	24%
Lower Kenai early	Hal Cove	1997	Homer	39,487	78,133	0.5054	4	36	54	17	157	236	44%	15%	12%
Lower Kenai early	Homer(e)	1994	Homer	25,615	163,963	0.1562	1	9	13	14	127	184	96%	32%	27%
Lower Kenai early	Homer(e)	1995	Homer	40,291	216,026	0.1865	1	13	20	12	154	237	96%	27%	21%
Lower Kenai early	Homer(e)	1996	Homer	39,017	204,085	0.1912	1	9	14	12	104	162	96%	32%	26%
Lower Kenai early	Homer(e)	1997	Homer	38,810	217,733	0.1782	4	35	53	50	434	657	48%	16%	13%
Lower Kenai early	Seldovia	1994	Crooked	45,439	107,246	0.4237	2	16	23	10	83	120	64%	22%	19%
Lower Kenai early	Seldovia	1995	Homer	40,678	116,165	0.3502	1	13	20	6	82	126	92%	25%	21%
Lower Kenai early	Seldovia	1996	Ninilchik	39,610	118,274	0.3349	1	9	14	7	59	92	92%	31%	25%
Lower Kenai early	Seldovia	1997	Ninilchik	39,834	103,757	0.3839	4	36	54	23	207	311	45%	15%	12%
Lower Kenai early		All		445,864	1,559,560	0.2859	22	204	308	169	1,558	2,357	22%	7%	6%

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Appendix A8. (page 2 of 2)

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Lower Kenai late	TwFalls(I)	1993	Kasilof	28,392	100,000	0.2839	-	1	1	-	8	8		0%	0%
Lower Kenai late	Homer(I)	1994	Kasilof	22,383	56,920	0.3932	1	8	12	6	45	67	91%	32%	26%
Lower Kenai late	Homer(I)	1995	Homer	40,466	123,048	0.3289	1	13	20	7	87	134	92%	26%	21%
Lower Kenai late	Homer(I)	1996	Homer	38,787	108,204	0.3585	1	9	14	6	55	86	92%	31%	24%
Lower Kenai late	Homer(I)	1997	Homer	39,264	100,933	0.3890	4	36	53	23	204	301	45%	15%	12%
Lower Kenai late		All		169,292	489,105	0.3461	7	67	100	41	400	597	35%	11%	9%
All Areas				1,526,691	5,044,307	0.3027	78	751	1,127	528	5,048	7,598	13%	4%	3%

[a] Theta is the proportion of total release that is marked.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.9. Expected recoveries of tags, harvest, and CV(harvest) with an actual sampling rate of 40% by area/runtime groups of hatchery chinook salmon in the KMA fishery during 1999.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Susitna	Willow	1995	Deception	46,256	167,643	0.2759	1	14	21	9	126	189	94%	25%	21%
Susitna	Willow	1996	Deception	47,145	186,918	0.2522	1	14	21	10	138	206	95%	25%	21%
Susitna	Willow	1997	Deception	207,973	209,644	0.9920	4	44	65	10	110	162	39%	12%	10%
Susitna	Willow	1998	Deception	195,615	197,392	0.9910	16	158	237	40	395	593	19%	6%	5%
Susitna		All	Deception	496,989	761,597	0.6526	22	230	344	69	768	1,150	22%	7%	6%
Upper Kenai	Ninilchik	1995	Ninilchik	54,115	54,662	0.9900	2	17	25	5	43	63	55%	19%	15%
Upper Kenai	Ninilchik	1996	Ninilchik	50,866	51,686	0.9841	1	15	22	3	38	55	78%	20%	17%
Upper Kenai	Ninilchik	1997	Ninilchik	50,292	50,968	0.9867	1	11	16	3	28	40	78%	23%	19%
Upper Kenai	Ninilchik	1998	Ninilchik	47,480	48,798	0.9730	4	38	57	10	97	145	39%	13%	10%
Upper Kenai	Crooked	1995	Homer	38,420	184,049	0.2087	1	12	18	12	142	214	96%	28%	23%
Upper Kenai	Crooked	1996	Homer	40,196	193,180	0.2081	1	12	18	12	143	214	96%	28%	23%
Upper Kenai	Crooked	1997	Homer	39,022	223,201	0.1748	1	8	12	14	113	170	96%	34%	28%
Upper Kenai	Crooked	1998	Homer	42,610	137,338	0.3103	3	34	52	24	272	415	54%	16%	13%
Upper Kenai		All		363,001	943,882	0.3846	14	147	220	82	875	1,317	31%	9%	8%
Anchorage	Ship	1995	Ship	38,570	218,487	0.1765	1	12	18	14	168	253	96%	28%	23%
Anchorage	Ship	1996	Ship	40,109	231,444	0.1733	1	12	17	14	172	243	96%	28%	23%
Anchorage	Ship	1997	Ship	40,319	326,371	0.1235	1	8	13	20	160	261	97%	34%	27%
Anchorage	Ship	1998	Ship	21,501	122,810	0.1751	2	17	26	28	241	368	68%	23%	19%
Anchorage		All		140,499	899,112	0.1563	5	49	74	77	741	1,125	44%	14%	11%
Kodiak	Buskin	1995	Deception	41,078	84,349	0.4870	1	12	18	5	61	92	90%	26%	21%
Kodiak	Buskin	1996	Deception	40,681	113,220	0.3593	1	9	13	7	62	90	92%	31%	26%
Kodiak		All		81,759	197,569	0.4138	2	21	31	12	123	181	65%	20%	17%
Lower Kenai early	Hal Cove	1995	Homer	36,700	37,577	0.9767	1	11	17	3	28	43	78%	23%	19%
Lower Kenai early	Hal Cove	1996	Homer	39,345	97,729	0.4026	1	11	17	6	68	105	92%	28%	22%
Lower Kenai early	Hal Cove	1997	Homer	39,487	78,133	0.5054	1	8	12	5	39	59	89%	32%	26%
Lower Kenai early	Hal Cove	1998	Homer	38,014	65,893	0.5769	3	31	46	13	133	198	51%	16%	13%
Lower Kenai early	Homer(e)	1995	Homer	40,291	216,026	0.1865	1	12	19	13	159	252	96%	28%	22%
Lower Kenai early	Homer(e)	1996	Homer	39,017	204,085	0.1912	1	11	17	13	143	220	96%	29%	23%
Lower Kenai early	Homer(e)	1997	Homer	38,810	217,733	0.1782	1	8	12	14	111	167	96%	34%	28%
Lower Kenai early	Homer(e)	1998	Homer	39,652	177,730	0.2231	3	32	48	33	355	533	55%	17%	14%
Lower Kenai early	Seldovia	1995	Homer	40,678	116,165	0.3502	1	12	19	7	85	134	93%	27%	21%

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Appendix A.9. (page 2 of 2)

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Group	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Lower Kenai early	Seldovia	1996	Ninilchik	39,610	118,274	0.3349	1	12	17	7	89	126	93%	27%	23%
Lower Kenai early	Seldovia	1997	Ninilchik	39,834	103,757	0.3839	1	8	13	6	52	84	92%	33%	25%
Lower Kenai early	Seldovia	1998	Ninilchik	40,125	69,461	0.5777	3	32	49	13	137	210	51%	15%	13%
Lower Kenai early		All		471,563	1,502,563	0.3138	18	188	286	134	1,400	2,132	25%	8%	6%
Lower Kenai late	Homer(l)	1995	Homer	40,466	123,048	0.3289	1	12	19	8	90	143	93%	27%	21%
Lower Kenai late	Homer(l)	1996	Homer	38,787	108,204	0.3585	1	11	17	7	76	118	92%	28%	22%
Lower Kenai late	Homer(l)	1997	Homer	39,264	100,933	0.3890	1	8	12	6	51	76	92%	32%	27%
Lower Kenai late	Homer(l)	1998	Homer	39,997	112,100	0.3568	3	32	48	21	222	333	53%	16%	13%
Lower Kenai late		All		158,514	444,285	0.3568	6	63	96	42	440	671	38%	12%	9%
All Areas				1,671,644	4,635,788	0.3606	66	689	1,038	408	4,285	6,486	14%	4%	4%

[a] Theta is the proportion of total release that is marked.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.10. Expected recoveries of tags, harvest, and CV(harvest) with an actual sampling rate of 28% by selected cohorts of wild chinook salmon in the KMA fishery during 1997.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Cohort	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Deep Creek	Smolt	1994	Wild	9,611	N/A	0.0810	-	2	3	-	89	134		71%	58%
Deep Creek	Smolt	1995	Wild	8,394	N/A	0.0960	-	1	2	-	38	75		100%	71%
Deep Creek	Smolt	1996	Wild	4,608	N/A	0.0550	-	3	4	-	197	263		58%	50%
Deep Creek	All			22,613	N/A		-	6	9	-	324	472		42%	34%
Kenai River	Fingerling	1993	Wild	152,397	N/A	0.0120	-	4	5	-	1,205	1,506		50%	45%
Kenai River	Fingerling	1994	Wild	88,109	N/A	0.0720	-	-	1	-	-	50		-	-
Kenai River	Fingerling	1995	Wild	58,741	N/A	0.0200	-	3	5	-	542	903		-	-
Kenai River	Smolt	1996	Wild	6,532	N/A	0.0002	-	-	1	-	-	18,069		-	-
Kenai River	All			305,779	N/A		-	4	6	-	1,205	1,556		50%	43%

[a] Theta is the proportion of total release that is marked. For wild releases this is estimated from adult returns.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.11. Expected recoveries of tags, harvest, and CV(harvest) with an actual sampling rate of 45% by selected cohorts of wild chinook salmon in the KMA fishery during 1998.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Cohort	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Deep Creek	Smolt	1994	Wild	9,611	N/A	0.0810	-	3	5	-	82	136		58%	45%
Deep Creek	Smolt	1995	Wild	8,394	N/A	0.0960	-	3	4	-	69	92		58%	50%
Deep Creek	Smolt	1996	Wild	4,608	N/A	0.0550	-	1	2	-	40	80		0%	71%
Deep Creek	Smolt	1997	Wild	4,970	N/A	0.0550	-	4	7	-	161	281		50%	38%
Deep Creek		All		27,583	N/A	N/A	-	11	18	-	352	590		31%	24%
Kenai River	Fingerling	1993	Wild	152,397	N/A	0.0120	1	7	10	184	1,289	1,841	100%	38%	32%
Kenai River	Fingerling	1994	Wild	88,109	N/A	0.0720	-	3	5	-	92	153		58%	45%
Kenai River	Fingerling	1995	Wild	58,741	N/A	0.0200	-	-	1	-	-	110		0%	0%
Kenai River	Smolt	1996	Wild	6,532	N/A	0.0002	-	-	1	-	-	11,048		0%	0%
Kenai River	Smolt	1997	Wild	32,205	N/A	0.0720	3	29	44	92	890	1,350	58%	19%	15%
Kenai River		All		337,984	N/A	N/A	4	39	61	276	2,271	14,504	69%	23%	76%
Willow Creek	Fingerling	1996	Wild	46,206	N/A	0.0167	-	2	3	-	265	398		71%	58%
Willow Creek		All		46,206	N/A	N/A	-	2	3	-	265	398		71%	58%

[a] Theta is the proportion of total release that is marked. For wild releases this is estimated from adult returns.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix A.12. Expected recoveries of tags, harvest, and CV(harvest) with an actual sampling rate of 40% by selected cohorts of wild chinook salmon in the KMA fishery during 1999.

							Tags[b]			Harvest[c]			CV(Harvest)[d]		
Cohort	Release	Year	Stock	Marks	Total	Theta[a]	1%	10%	15%	1%	10%	15%	1%	10%	15%
Deep Creek	Smolt	1994	Wild	9,611	N/A	0.0810	-	-	1	-	-	31			100%
Deep Creek	Smolt	1995	Wild	8,394	N/A	0.0960	-	3	4	-	77	103		58%	50%
Deep Creek	Smolt	1996	Wild	4,608	N/A	0.0550	-	1	2	-	45	90		0%	71%
Deep Creek	Smolt	1997	Wild	4,970	N/A	0.0550	-	1	2	-	45	90		100%	71%
Deep Creek		All		27,583	N/A	N/A	-	5	9	-	168	314		46%	34%
Kenai River	Fingerling	1993	Wild	152,397	N/A	0.0120	-	-	-	-	-	-			
Kenai River	Fingerling	1994	Wild	88,109	N/A	0.0720	-	4	5	-	138	172		50%	45%
Kenai River	Fingerling	1995	Wild	58,741	N/A	0.0200	-	2	3	-	248	372		0%	0%
Kenai River	Smolt	1996	Wild	6,532	N/A	0.0002	-	2	3	-	24,783	37,175		0%	0%
Kenai River	Smolt	1997	Wild	32,205	N/A	0.0100	-	2	3	-	496	744		71%	58%
Kenai River	Smolt	1998	Wild	17,329	N/A	0.0050	1	14	21	496	6,939	10,409	100%	27%	22%
Kenai River		All		355,313	N/A	N/A	1	24	35	496	32,604	48,871	100%	54%	44%
Willow Creek	Fingerling	1996	Wild	46,206	N/A	0.0167	-	1	1	-	149	149		100%	100%
Willow Creek	Fingerling	1997	Wild	123,701	N/A	0.0500	1	10	15	50	496	744	100%	32%	26%
Willow Creek		All		169,907	N/A	N/A	1	11	16	50	644	892	100%	34%	27%

[a] Theta is the proportion of total release that is marked. For wild releases this is estimated from adult returns.

[b] Tags is the number of tags expected at the exploitation rate indicated.

[c] Harvest is the number of fish harvested at the exploitation rate indicated.

[d] CV(Harvest) is the coefficient of variation (100% x SE/Harvest) of the harvest estimate at the exploitation rate indicated.

Appendix B.1. Summary of chinook coded wire tags randomly recovered from KMA commercial salmon harvests by release site and brood year, 1997.

State or Province	Brood Year				
Release Site	1992	1993	1994	1995	Total
Alaska					
SE					
HERRING COVE 101-45		2			2
BEAR COVE 113-41		1	1		2
Cook Inlet					
HOMER SPIT 241-13	1				1
NINILCHIK R 244-20				3	3
CROOKED CR 244-30			1		1
KENAI R 244-30		1	1		2
DECEPTION CR 247-41				1	1
SHIP CR 247-50				3	3
Kodiak					
BUSKIN R 259-21			2	1	3
subtotal	1	4	5	8	18
British Columbia					
R-ATNARKO R UPPER				1	1
R-BURMAN RIVER				1	1
R-KITSUMKALUM R	1				1
R-KILBELLA BAY			2		2
R-SHUSWAP R LOWER			2		2
R-TRANQUILLE EST				2	2
R-CHUCKWALLA RIVER			2	1	3
R-CONUMA RIVER		1	2		3
R-NAHMINT RIVER		1	2		3
R-ATNARKO SPAWN CHAN		2	2		4
R-KITIMAT LOWER			4		4
R-SAN JUAN RIVER			4		4
R-SHUSWAP R. MIDDLE			1	3	4
R-TAHSIS RIVER		2	2		4
R-CONUMA ESTUARY		4	3		7
R-SARITA R			8		8
R-NITINAT RIVER		1	8		9
R-NITINAT LAKE			8	3	11
R-ROBERTSON CREEK		2	26		28
subtotal	1	13	76	11	101

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Appendix B.1. (page 2 of 2)

State or Province	Brood Year				
Release Site	1992	1993	1994	1995	Total
Washington					
COL.R. @ MCNARY DAM			1		1
COLUMBIA NEAR WELLS		1			1
COLUMBIA R AT PRIEST				1	1
HANFORD REACH (36)			1		1
HOKO R 19.0148			1		1
KLICKITAT R 30.0002			1		1
WENATCHEE R 45.0030	1				1
YAKIMA @ PROSSER HAT				1	1
SALMON R 21.0139			2		2
subtotal	1	1	6	2	10
Oregon					
BLIND SLOUGH LOW COL			1		1
ELK RIVER			1		1
MCKENZIE R-1			1		1
SALMON R/OR - COAST				2	2
SANTIAM R, S FK			2		2
UMPQUA R			1	1	2
WILLAMETTE R-1			2		2
subtotal	0	0	8	3	11
Grand Total	3	18	95	24	140

Appendix B.2. Summary of chinook coded wire tags randomly recovered from KMA commercial salmon harvests by release site and brood year, 1998.

State or Province	Brood Year					
Release Site	1992	1993	1994	1995	1996	Total
Alaska						
SE						
HERRING COVE 101-45		1	1			2
UNUK R 101-75				1		1
CRYSTAL CR 106-44		1				1
TAKU R 111-32				1		1
FISH CR 111-50				1		1
KASNYKU BAY 112-11				1		1
BEAR COVE 113-41				1		1
TAMGAS CR				1		1
Cook Inlet						
LOWELL CR 231-30					3	3
SELDOVIA HBR 241-11			2	2	1	5
HOMER SPIT 241-13	1		6		3	10
HALIBUT CV LAG241-15			2	2	1	5
NINILCHIK R 244-20			1	2	3	6
CROOKED CR 244-30				1		1
KENAI R 244-30	1	1				2
WILLOW CR 247-41				1		1
DECEPTION CR 247-41				1	12	13
Kodiak						
BUSKIN R 259-21			4	20		24
subtotal	2	3	16	35	23	79
British Columbia						
R-ATNARKO R UPPER			2	4		6
R-ATNARKO SPAWN CHAN			1			1
R-CHUCKWALLA RIVER				2		2
R-CONUMA ESTUARY			5		1	6
R-CONUMA RIVER		1	1			2
R-KILBELLA BAY			1			1
R-KITIMAT LOWER				1		1
R-KITSUMKALUM R		1	1	1		3
R-LITTLE QUALICUM R				1		1
R-NAHMINT RIVER			4			4
R-NITINAT LAKE		1	6	14	1	22
R-NITINAT RIVER		2	3	6		11
R-RIVERS INLET		2				2
R-ROBERTSON CREEK			24	2		26
R-SALLOOMT RIVER					1	1

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Appendix B.2. (page 2 of 2)

State or Province	Brood Year					
Release Site	1992	1993	1994	1995	1996	Total
British Columbia (Cont.)						
R-SALMON R/THOMPSON				2		2
R-SAN JUAN RIVER			3			3
R-SARITA R			9			9
R-SHUSWAP R LOWER			1	1		2
R-SHUSWAP R. MIDDLE				1		1
R-SOOKE HRBR					1	1
R-TAHSIS RIVER			2			2
R-TRANQUILLE EST				15		15
R-YAKOUN RIVER					1	1
subtotal	0	7	63	50	5	125
Washington						
COL.R. @ MCNARY DAM				1		1
COL.R ROCKY R-WELLS					1	1
COL.R. @ RM 141			1	3		4
COL.R. @ TURTLE ROCK		1	1		1	3
COLUMBIA R AT PRIEST				1		1
COOK CR 21.0429		1	3	2	1	7
HANFORD REACH (36)				1		1
HOKO R 19.0148					1	1
KLICKITAT R 30.0002				3		3
LEWIS R 27.0168			2			2
LTL WHITE SALMON@NFH				1		1
QUINAULT LAKE (21)					1	1
SALMON R 21.0139				1	1	2
SIMILKAMEEN R 490325			3			3
WENATCHEE R 45.0030			4			4
WILLAPA R 24.0251			1			1
YAKIMA @ PROSSER HAT				2		2
subtotal	0	2	15	15	6	38
Oregon						
CLACKAMAS R			1	1		2
FALL CR (ALSEA R)				1		1
SALMON R/OR - COAST					3	3
SANDY R				1		1
TANNER CR				3		3
TONGUE PT. LOWER COL				1		1
UMPQUA R				3		3
subtotal	0	0	1	10	3	14
Grand Total	2	12	95	110	37	256

Appendix B.3. Summary of chinook coded wire tags randomly recovered from KMA commercial salmon harvests by release site and brood year, 1999.

State or Province	Release Site	Brood Year 1994	1995	1996	1997	Total
Alaska						
SE						
	HERRING COVE 101-45		3	1		4
	UNUK R 101-75	1	1			2
	EARL WEST COV 107-40		1	1		2
	L PORT WALTER 109-10	1	4			5
	TAKU R 111-32		1	1		2
	KASNYKU BAY 112-11		2			2
	BEAR COVE 113-41		2			2
	CRESCENT BAY 113-41	1	1			2
	TAMGAS CR	1	1	1		3
Cook Inlet						
	LOWELL CR 231-30			1		1
	SELDOVIA HBR 241-11		2	1	1	4
	HALIBUT CV LAG241-15	1	1			2
	NINILCHIK R 244-20	1	2	2		5
	CROOKED CR 244-30		2			2
	DECEPTION CR 247-41			1	4	5
	DESHKA R 247-41		1			1
	SHIP CR 247-50		1			1
Kodiak						
	BUSKIN R 259-21	1	18			19
subtotal		7	43	9	5	64
British Columbia						
	R-ATNARKO R UPPER		2	1		3
	R-ATNARKO SPAWN CHAN		1			1
	R-BABINE RIVER		1	1		2
	R-BIRKENHEAD RIVER		2			2
	R-BULKLEY R UPPER		1	3		4
	R-CHUCKWALLA RIVER		1	3		4
	R-CONUMA ESTUARY			3		3
	R-ESQUIMALT HRBR			1		1
	R-KILBELLA BAY	1	1	2		4
	R-KILDALA RIVER				1	1
	R-KITSUMKALUM R	2	1	4		7
	R-NAHMINT RIVER	1				1
	R-NITINAT LAKE	1	2	2	1	6
	R-NITINAT RIVER	3				3
	R-ROBERTSON CREEK	2		2		4
	R-SALLOOMT RIVER		1	1		2

-Continued-

Appendix B.3. (page 2 of 2)

State or Province	Brood Year				
Release Site	1994	1995	1996	1997	Total
British Columbia (Cont.)					
R-SARITA R			1		1
R-SHUSWAP R LOWER				1	1
R-SHUSWAP R. MIDDLE			2		2
R-TRANQUILLE EST		4	4		8
R-YAKOUN RIVER			1	1	2
subtotal	10	17	31	4	62
Washington					
COL.R PRIEST-WANAPUM			2		2
COL.R ROCKY R-WELLS			1		1
COL.R. @ MCNARY DAM		1			1
COL.R. @ RM 141		2			2
COLUMBIA NEAR WELLS		2			2
COLUMBIA R - GENERAL		1			1
COLUMBIA R AT PRIEST		1			1
KLICKITAT R 30.0002			1	1	2
QUINAULT LAKE (21)	1	1	5		7
RINGOLD POND (TROUT)			1		1
SALMON R 21.0139	1		3	1	5
SIMILKAMEEN R 490325		2			2
subtotal	2	10	13	2	27
Oregon					
BLIND SLOUGH LOW COL			1		1
CLACKAMAS R			2		2
ELK RIVER		1			1
MCKENZIE R-1		2	4		6
SALMON R/OR - COAST			1	2	3
SANTIAM R & N FK-1			17		17
SANTIAM R, S FK		1			1
TONGUE PT. LOWER COL		1	6		7
WILLAMETTE R, MD FK2		2			2
WILLAMETTE R, MID FK				1	1
WILLAMETTE R-1			3		3
WILLAMETTE R-2			2		2
YAQUINA R				2	2
subtotal	0	7	36	5	48
Grand Total	19	77	89	16	201

Appendix C.1. Total harvest, estimated group harvest, contribution, and standard errors by area and week for West Coast of Vancouver Island cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332	5	4	0.02	0.01	20	20	65	1.00	3.24											352	25	65	0.07	0.18
	26	2,637	82	79	0.03	0.03	139					1										2,777	82	79	0.03	0.03
	27	1,705	572	212	0.34	0.12	41					0										1,746	572	212	0.33	0.12
	28	1,059	640	297	0.60	0.28	10					703	289	191	0.41	0.27	2,430	611	336	0.25	0.14	4,202	1,540	488	0.37	0.12
	29	976					16					736					790	790	596	1.00	0.75	2,518	790	596	0.31	0.24
	30	2,233	121	121	0.05	0.05	10					131					120	13	10	0.11	0.08	2,494	134	121	0.05	0.05
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	1,420	393	0.15	0.04	295	20	65	0.07	0.22	1,573	289	191	0.18	0.12	3,353	1,413	684	0.42	0.20	14,661	3,143	814	0.21	0.06
1998	24	482	142	78	0.29	0.16	64															546	142	78	0.26	0.14
	25	4,412	695	203	0.16	0.05	449	134	133	0.30	0.30											4,861	829	243	0.17	0.05
	26	2,668	617	234	0.23	0.09	254	141	100	0.55	0.40	98										3,020	758	254	0.25	0.08
	27	1,084	106	69	0.10	0.06	246	106	105	0.43	0.43	0										1,330	212	126	0.16	0.09
	28	1,063	148	105	0.14	0.10	88	15	9	0.17	0.10	337	2	2	0.01	0.00		Not sampled in 1998				1,488	165	105	0.11	0.07
	29	799	96	93	0.12	0.12	75					294	100	71	0.34	0.24						1,168	196	117	0.17	0.10
	30	882	509	197	0.58	0.22	47					23	10	10	0.45	0.42						952	519	197	0.55	0.21
	31	976	503	307	0.51	0.31	74					2										1,052	503	307	0.48	0.29
	32	814	733	679	0.90	0.83	49					6										869	733	679	0.84	0.78
	Total	13,180	3,549	849	0.27	0.06	1,346	395	198	0.29	0.15	760	113	72	0.15	0.09						15,286	4,056	875	0.27	0.06
1999	24	117					16															133				
	25	2,587					0										488	232	232	0.48	0.48	3,075	232	232	0.08	0.08
	26	2,654	6	3	0.00	0.00	75					99					411					3,239	6	3	0.00	0.00
	27	2,337	183	155	0.08	0.07	26					0					17					2,380	183	155	0.08	0.07
	28	1,592	99	96	0.06	0.06	0					293	100	79	0.34	0.27	379					2,264	199	125	0.09	0.06
	29	753	287	281	0.38	0.37	0					365	283	214	0.77	0.58	213					1,331	570	353	0.43	0.27
	30	440	8	7	0.02	0.02	37					350					927	229	219	0.25	0.24	1,754	237	219	0.14	0.12
	31	382					50	50	68	1.00	1.35	225	1	1	0.01	0.00	439					1,096	51	68	0.05	0.06
	32	189					27					35					93	66	65	0.71	0.70	344	66	65	0.19	0.19
	Total	11,051	583	335	0.05	0.03	231	50	68	0.22	0.29	1,367	384	228	0.28	0.17	2,967	528	325	0.18	0.11	15,616	1,545	524	0.10	0.03

Appendix C.2. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Northern and Central British Columbia cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332	14	13	0.04	0.04	20															352	14	13	0.04	0.04
	26	2,637	3	2	0.00	0.00	139					1										2,777	3	2	0.00	0.00
	27	1,705					41					0										1,746				
	28	1,059	4	3	0.00	0.00	10					703					2,430	58	41	0.02	0.02	4,202	62	41	0.01	0.01
	29	976					16					736					790					2,518				
	30	2,233					10					131					120	26	25	0.21	0.21	2,494	26	25	0.01	0.01
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	20	14	0.00	0.00	295					1,573					3,353	84	48	0.02	0.01	14,661	104	50	0.01	0.00
1998	24	482	1	1	0.00	0.00	64															546	1	1	0.00	0.00
	25	4,412					449															4,861				
	26	2,668	28	27	0.01	0.01	254					98										3,020	28	27	0.01	0.01
	27	1,084					246	7	4	0.03	0.02	0										1,330	7	4	0.00	0.00
	28	1,063	50	35	0.05	0.03	88	1	0	0.01	0.00	337						Not sampled in 1998				1,488	51	35	0.03	0.02
	29	799	46	46	0.06	0.06	75					294	14	11	0.05	0.04						1,168	60	47	0.05	0.04
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814	33	33	0.04	0.04	49					6										869	33	33	0.04	0.04
	Total	13,180	158	71	0.01	0.01	1,346	8	4	0.01	0.00	760	14	11	0.02	0.01						15,286	180	72	0.01	0.00
1999	24	117	3	3	0.03	0.02	16															133	3	3	0.02	0.02
	25	2,587	9	3	0.00	0.00	0										488					3,075	9	3	0.00	0.00
	26	2,654	44	31	0.02	0.01	75					99					411					3,239	44	31	0.01	0.01
	27	2,337	10	4	0.00	0.00	26					0					17					2,380	10	4	0.00	0.00
	28	1,592	3	2	0.00	0.00	0					293	2	0	0.01	0.00	379					2,264	5	2	0.00	0.00
	29	753	6	5	0.01	0.01	0					365	2	1	0.00	0.00	213					1,331	8	5	0.01	0.00
	30	440					37					350					927					1,754				
	31	382					50					225	14	14	0.06	0.06	439					1,096	14	14	0.01	0.01
	32	189					27					35					93	25	24	0.27	0.26	344	25	24	0.07	0.07
	Total	11,051	75	32	0.01	0.00	231					1,367	18	14	0.01	0.01	2,967	25	24	0.01	0.01	15,616	118	43	0.01	0.00

Appendix C.3. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Fraser River Spring cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637	26	26	0.01	0.01	139					1										2,777	26	26	0.01	0.01
	27	1,705					41					0										1,746				
	28	1,059	33	32	0.03	0.03	10					703					2,430					4,202	33	32	0.01	0.01
	29	976					16					736	20	19	0.03	0.03	790	36	36	0.05	0.05	2,518	56	41	0.02	0.02
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	59	41	0.01	0.00	295					1,573	20	19	0.01	0.01	3,353	36	36	0.01	0.01	14,661	115	58	0.01	0.00
1998	24	482					64	12	12	0.19	0.19											546	12	12	0.02	0.02
	25	4,412	12	11	0.00	0.00	449															4,861	12	11	0.00	0.00
	26	2,668					254					98										3,020				
	27	1,084	13	13	0.01	0.01	246					0										1,330	13	13	0.01	0.01
	28	1,063					88					337						Not sampled in 1998				1,488				
	29	799					75					294	2	2	0.01	0.01						1,168	2	2	0.00	0.00
	30	882	3	2	0.00	0.00	47					23										952	3	2	0.00	0.00
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	28	17	0.00	0.00	1,346	12	12	0.01	0.01	760	2	2	0.00	0.00						15,286	43	21	0.00	0.00
1999	24	117					16															133				
	25	2,587					0										488					3,075				
	26	2,654	7	7	0.00	0.00	75					99					411					3,239	7	7	0.00	0.00
	27	2,337	2	1	0.00	0.00	26					0					17					2,380	2	1	0.00	0.00
	28	1,592	10	9	0.01	0.01	0					293					379					2,264	10	9	0.00	0.00
	29	753					0					365					213					1,331				
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93	2	2	0.02	0.02	344	2	2	0.01	0.00
	Total	11,051	19	11	0.00	0.00	231					1,367					2,967	2	2	0.00	0.00	15,616	21	11	0.00	0.00

Appendix C.4. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Washington Coastal cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705	2	1	0.00	0.00	41					0										1,746	2	1	0.00	0.00
	28	1,059					10					703					2,430	4	4	0.00	0.00	4,202	4	4	0.00	0.00
	29	976					16					736					790	14	14	0.02	0.02	2,518	14	14	0.01	0.01
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	2	1	0.00	0.00	295					1,573					3,353	18	14	0.01	0.00	14,661	20	14	0.00	0.00
1998	24	482					64															546				
	25	4,412	16	10	0.00	0.00	449															4,861	16	10	0.00	0.00
	26	2,668	24	23	0.01	0.01	254					98										3,020	24	23	0.01	0.01
	27	1,084					246					0										1,330				
	28	1,063	4	4	0.00	0.00	88					337	2	2	0.01	0.01		Not sampled in 1998				1,488	7	4	0.00	0.00
	29	799	33	21	0.04	0.03	75					294	2	2	0.01	0.01						1,168	36	22	0.03	0.02
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	78	33	0.01	0.00	1,346					760	5	3	0.01	0.00						15,286	83	33	0.01	0.00
1999	24	117					16															133				
	25	2,587					0										488					3,075				
	26	2,654	21	15	0.01	0.01	75					99					411					3,239	21	15	0.01	0.00
	27	2,337	18	15	0.01	0.01	26					0					17					2,380	18	15	0.01	0.01
	28	1,592	37	33	0.02	0.02	0					293					379					2,264	37	33	0.02	0.01
	29	753					0					365	2	2	0.01	0.00	213					1,331	2	2	0.00	0.00
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189	32	31	0.17	0.17	27					35					93					344	32	31	0.09	0.09
	Total	11,051	107	50	0.01	0.00	231					1,367	2	2	0.00	0.00	2,967					15,616	109	50	0.01	0.00

Appendix C.5. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Northern and Central Oregon Coastal cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430	15	10	0.01	0.00	4,202	15	10	0.00	0.00
	29	976					16					736	4	3	0.01	0.00	790					2,518	4	3	0.00	0.00
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573	4	3	0.00	0.00	3,353	15	10	0.00	0.00	14,661	19	11	0.00	0.00
1998	24	482					64															546				
	25	4,412					449															4,861				
	26	2,668	8	8	0.00	0.00	254					98										3,020	8	8	0.00	0.00
	27	1,084	1	1	0.00	0.00	246					0										1,330	1	1	0.00	0.00
	28	1,063					88					337						Not sampled in 1998				1,488				
	29	799					75					294	4	2	0.01	0.01						1,168	4	2	0.00	0.00
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	10	8	0.00	0.00	1,346					760	4	2	0.00	0.00						15,286	14	8	0.00	0.00
1999	24	117					16															133				
	25	2,587					0										488					3,075				
	26	2,654	2	2	0.00	0.00	75					99					411					3,239	2	2	0.00	0.00
	27	2,337	4	3	0.00	0.00	26					0					17					2,380	4	3	0.00	0.00
	28	1,592					0					293					379					2,264				
	29	753					0					365					213					1,331				
	30	440					37					350					927					1,754				
	31	382					50					225	5	5	0.02	0.02	439					1,096	5	5	0.00	0.00
	32	189	3	3	0.02	0.01	27					35					93					344	3	3	0.01	0.01
	Total	11,051	9	4	0.00	0.00	231					1,367	5	5	0.00	0.00	2,967					15,616	14	6	0.00	0.00

Appendix C.6. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Willamette River Spring cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637	43	31	0.02	0.01	139					1										2,777	43	31	0.02	0.01
	27	1,705					41					0										1,746				
	28	1,059	13	13	0.01	0.01	10					703					2,430					4,202	13	13	0.00	0.00
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	57	33	0.01	0.00	295					1,573					3,353					14,661	57	33	0.00	0.00
1998	24	482					64															546				
	25	4,412	28	28	0.01	0.01	449															4,861	28	28	0.01	0.01
	26	2,668					254					98										3,020				
	27	1,084					246					0										1,330				
	28	1,063					88					337						Not sampled in 1998				1,488				
	29	799					75					294	33	33	0.11	0.11						1,168	33	33	0.03	0.03
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	28	28	0.00	0.00	1,346					760	33	33	0.04	0.04						15,286	61	43	0.00	0.00
1999	24	117					16															133				
	25	2,587	15	9	0.01	0.00	0										488					3,075	15	9	0.00	0.00
	26	2,654	77	34	0.03	0.01	75					99					411					3,239	77	34	0.02	0.01
	27	2,337	59	21	0.03	0.01	26					0					17					2,380	59	21	0.02	0.01
	28	1,592	3	3	0.00	0.00	0					293	2	1	0.01	0.00	379					2,264	5	3	0.00	0.00
	29	753	16	15	0.02	0.02	0					365					213					1,331	16	15	0.01	0.01
	30	440					37					350					927	14	9	0.02	0.01	1,754	14	9	0.01	0.01
	31	382					50					225	1	1	0.01	0.00	439					1,096	1	1	0.00	0.00
	32	189					27					35					93					344				
	Total	11,051	169	44	0.02	0.00	231					1,367	4	1	0.00	0.00	2,967	14	9	0.00	0.00	15,616	187	45	0.01	0.00

Appendix C.7. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Upper Columbia River Summer and Fall cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705	2	2	0.00	0.00	43					0										1,746	2	2	0.00	0.00
	28	1,059					10					703					2,430	88	88	0.04	0.04	4,202	88	88	0.02	0.02
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	2	2	0.00	0.00	295					1,573					3,353	88	88	0.03	0.03	14,661	90	88	0.01	0.01
1998	24	482	1	1	0.00	0.00	64															546	1	1	0.00	0.00
	25	4,412	110	56	0.02	0.01	449															4,861	110	56	0.02	0.01
	26	2,668	217	163	0.08	0.06	254					98										3,020	217	163	0.07	0.05
	27	1,084	4	2	0.00	0.00	246					0										1,330	4	2	0.00	0.00
	28	1,063	4	2	0.00	0.00	88	1	0	0.01	0.00	337	44	44	0.13	0.13		Not sampled in 1998				1,488	49	44	0.03	0.03
	29	799	5	3	0.01	0.00	75					294										1,168	5	3	0.00	0.00
	30	882	2	2	0.00	0.00	47					23										952	2	2	0.00	0.00
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	344	173	0.03	0.01	1,346	1	0	0.00	0.00	760	44	44	0.06	0.06						15,286	389	178	0.03	0.01
1999	24	117					16															133				
	25	2,587	2	1	0.00	0.00	0										488					3,075	2	1	0.00	0.00
	26	2,654	102	69	0.04	0.03	75					99					411					3,239	102	69	0.03	0.02
	27	2,337	6	3	0.00	0.00	26					0					17					2,380	6	3	0.00	0.00
	28	1,592	69	69	0.04	0.04	0					293					379					2,264	69	69	0.03	0.03
	29	753	6	5	0.01	0.01	0					365	2	1	0.00	0.00	213					1,331	7	5	0.01	0.00
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051	185	98	0.02	0.01	231					1,367	2	1	0.00	0.00	2,967					15,616	187	98	0.01	0.01

Appendix C.8. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Southeast Alaska Inside Rearing cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637	43	42	0.02	0.02	139					1										2,777	43	42	0.02	0.02
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	43	42	0.00	0.00	295					1,573					3,353					14,661	43	42	0.00	0.00
1998	24	482					64															546				
	25	4,412					449															4,861				
	26	2,668	57	40	0.02	0.02	254					98										3,020	57	40	0.02	0.01
	27	1,084					246					0										1,330				
	28	1,063	19	14	0.02	0.01	88					337	23	22	0.07	0.07		Not sampled in 1998				1,488	42	27	0.03	0.02
	29	799					75					294	20	19	0.07	0.07						1,168	20	19	0.02	0.02
	30	882	2	2	0.00	0.00	47					23										952	2	2	0.00	0.00
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	78	43	0.01	0.00	1,346					760	43	30	0.06	0.04						15,286	120	52	0.01	0.00
1999	24	117	3	3	0.03	0.02	16															133	3	3	0.02	0.02
	25	2,587	11	10	0.00	0.00	0										488	45	44	0.09	0.09	3,075	55	45	0.02	0.01
	26	2,654	50	28	0.02	0.01	75					99					411					3,239	50	28	0.02	0.01
	27	2,337	66	36	0.03	0.02	26					0					17					2,380	66	36	0.03	0.02
	28	1,592	65	37	0.04	0.02	0					293					379					2,264	65	37	0.03	0.02
	29	753	6	5	0.01	0.01	0					365					213					1,331	6	5	0.00	0.00
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051	200	60	0.02	0.01	231					1,367					2,967	45	44	0.02	0.01	15,616	244	74	0.02	0.00

Appendix C.9. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Southeast Alaska Transboundary cohorts, 1997-1999.

		Westside					Afiak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib.	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573					3,353					14,661				
1998	24	482					64															546				
	25	4,412	2	2	0.00	0.00	449															4,861	2	2	0.00	0.00
	26	2,668					254					98										3,020				
	27	1,084					246					0										1,330				
	28	1,063					88					337						Not sampled in 1998				1,488				
	29	799					75					294										1,168				
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	2	2	0.00	0.00	1,346					760										15,286	2	2	0.00	0.00
1999	24	117					16															133				
	25	2,587					0										488					3,075				
	26	2,654					75					99					411					3,239				
	27	2,337					26					0					17					2,380				
	28	1,592					0					293	1	0	0.00	0.00	379					2,264	1	0	0.00	0.00
	29	753					0					365					213					1,331				
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051					231					1,367	1	0	0.00	0.00	2,967					15,616	1	0	0.00	0.00

Appendix C.10. Total harvest, estimated group harvest, contribution, and standard errors by area and week for all hatchery cohorts except the Kodiak group (Buskin River), 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332	19	14	0.06	0.04	20	20	65	1.00	3.24											352	39	66	0.11	0.19
	26	2,637	197	98	0.07	0.04	139					1										2,777	197	98	0.07	0.04
	27	1,705	576	212	0.34	0.12	41					0										1,746	576	212	0.33	0.12
	28	1,059	690	299	0.65	0.28	10					703	309	192	0.44	0.27	2,430	776	350	0.32	0.14	4,202	1,775	499	0.42	0.12
	29	976					16					736	63	32	0.08	0.04	790	790	597	1.00	0.76	2,518	853	598	0.34	0.24
	30	2,233	121	121	0.05	0.05	10					131					120	38	27	0.32	0.23	2,494	160	124	0.06	0.05
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	1,603	399	0.17	0.04	295	20	65	0.07	0.22	1,573	371	194	0.24	0.12	3,353	1,604	693	0.48	0.21	14,661	3,599	825	0.25	0.06
1998	24	482	150	78	0.31	0.16	64	16	12	0.25	0.19											546	166	79	0.30	0.14
	25	4,412	910	215	0.21	0.05	449	142	133	0.32	0.30											4,861	1,052	253	0.22	0.05
	26	2,668	1,088	303	0.41	0.11	254	141	100	0.55	0.40	98										3,020	1,229	319	0.41	0.11
	27	1,084	150	71	0.14	0.07	246	112	105	0.46	0.43	0										1,330	263	127	0.20	0.10
	28	1,063	238	112	0.22	0.11	88	18	9	0.20	0.10	337	78	49	0.23	0.15		Not sampled in 1998				1,488	334	123	0.22	0.08
	29	799	194	106	0.24	0.13	75					294	181	82	0.61	0.28						1,168	375	134	0.32	0.11
	30	882	512	197	0.58	0.22	47	5	4	0.10	0.09	23	10	10	0.45	0.42						952	527	197	0.55	0.21
	31	976	503	307	0.51	0.31	74					2										1,052	503	307	0.48	0.29
	32	814	766	680	0.94	0.84	49					6										869	766	680	0.88	0.78
	Total	13,180	4,512	876	0.34	0.07	1,346	433	198	0.32	0.15	760	269	96	0.35	0.13						15,286	5,215	904	0.34	0.06
1999	24	117	3	3	0.03	0.02	16															133	3	3	0.02	0.02
	25	2,587	41	14	0.02	0.01	0										488	282	236	0.58	0.48	3,075	323	236	0.10	0.08
	26	2,654	326	90	0.12	0.03	75					99	17	12	0.17	0.12	411					3,239	343	91	0.11	0.03
	27	2,337	356	162	0.15	0.07	26					0					17					2,380	356	162	0.15	0.07
	28	1,592	286	129	0.18	0.08	0					293	117	80	0.40	0.27	379					2,264	402	152	0.18	0.07
	29	753	320	282	0.43	0.37	0					365	289	214	0.79	0.59	213					1,331	609	353	0.46	0.27
	30	440	31	24	0.07	0.05	37					350					927	244	219	0.26	0.24	1,754	274	220	0.16	0.13
	31	382					50	50	68	1.00	1.36	225	22	15	0.10	0.07	439					1,096	72	69	0.07	0.06
	32	189	35	31	0.19	0.17	27					35					93	93	70	1.00	0.75	344	128	76	0.37	0.22
	Total	11,051	1,398	363	0.13	0.03	231	50	68	0.22	0.29	1,367	444	229	0.33	0.17	2,967	618	329	0.21	0.11	15,616	2,510	545	0.16	0.03

Appendix C.11. Total harvest, estimated group harvest, contribution, and standard errors by area and week for all Cook Inlet hatchery cohorts, 1997-1999.

		Westside					Alitak					Eastside							Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50										1997	24						113				
	25	332					20											25						352				
	26	2,637					139					1						26						2,777				
	27	1,705					41					0						27						1,746				
	28	1,059					10					703	19	19	0.03	0.03		28	2,430					4,202	19	19	0.00	0.00
	29	976					16					736	39	25	0.05	0.03		29	790					2,518	39	25	0.02	0.01
	30	2,233					10					131						30	120					2,494				
	31	173					1					0						31	0					174				
	32	262					8					2						32	13					285				
	Total	9,440					295					1,573	58	31	0.04	0.02		Total	3,353					14,661	58	31	0.00	0.00
1998	24	482	5	5	0.01	0.01	64	4	3	0.06	0.05						1998	24						546	9	6	0.02	0.01
	25	4,412	25	14	0.01	0.00	449	8	8	0.02	0.02							25						4,861	33	16	0.01	0.00
	26	2,668	48	21	0.02	0.01	254					98						26						3,020	48	21	0.02	0.01
	27	1,084	11	4	0.01	0.00	246					0						27						1,330	11	4	0.01	0.00
	28	1,063	15	11	0.01	0.01	88	1	0	0.01	0.00	337	7	6	0.02	0.02		28		Not sampled in 1998				1,488	23	13	0.02	0.01
	29	799	13	8	0.02	0.01	75					294	5	4	0.02	0.01		29						1,168	18	9	0.02	0.01
	30	882					47	5	4	0.10	0.09	23						30						952	5	4	0.00	0.00
	31	976					74					2						31						1,052				
	32	814					49					6						32						869				
	Total	13,180	119	29	0.01	0.00	1,346	17	9	0.01	0.01	760	11	7	0.01	0.01		Total						15,286	148	32	0.01	0.00
1999	24	117					16										1999	24						133				
	25	2,587	7	3	0.00	0.00	0											25	488	5	4	0.01	0.01	3,075	11	5	0.00	0.00
	26	2,654	21	11	0.01	0.00	75					99	17	12	0.17	0.12		26	411					3,239	38	16	0.01	0.01
	27	2,337	4	2	0.00	0.00	26					0						27	17					2,380	4	2	0.00	0.00
	28	1,592					0					293						28	379					2,264				
	29	753	6	5	0.01	0.01	0					365						29	213					1,331	6	5	0.00	0.00
	30	440	23	23	0.05	0.05	37					350						30	927					1,754	23	23	0.01	0.01
	31	382					50	5	5	0.10	0.09	225						31	439					1,096	5	5	0.00	0.00
	32	189					27					35						32	93					344				
	Total	11,051	61	26	0.01	0.00	231	5	5	0.02	0.02	1,367	17	12	0.01	0.01		Total	2,967	5	4	0.00	0.00	15,616	87	29	0.01	0.00

Appendix C.12. Total harvest, estimated group harvest, contribution, and standard errors by area and week for Buskin River hatchery cohorts (Kodiak area/runtime group), 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637	13	9	0.01	0.00	139					1										2,777	13	9	0.00	0.00
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440	13	9	0.00	0.00	295					1,573					3,353					14,661	13	9	0.00	0.00
1998	24	482	11	6	0.02	0.01	64	4	3	0.06	0.05											546	15	7	0.03	0.01
	25	4,412	41	14	0.01	0.00	449	13	9	0.03	0.02											4,861	54	16	0.01	0.00
	26	2,668	21	11	0.01	0.00	254					98										3,020	21	11	0.01	0.00
	27	1,084	3	2	0.00	0.00	246					0										1,330	3	2	0.00	0.00
	28	1,063	10	6	0.01	0.01	88					337						Not sampled in 1998				1,488	10	6	0.01	0.00
	29	799	7	7	0.01	0.01	75					294										1,168	7	7	0.01	0.01
	30	882					47					23										952				
	31	976	16	15	0.02	0.02	74					2										1,052	16	15	0.01	0.01
	32	814					49					6										869				
	Total	13,180	108	26	0.01	0.00	1,346	17	9	0.01	0.01	760										15,286	125	27	0.01	0.00
1999	24	117	9	8	0.07	0.07	16															133	9	8	0.06	0.06
	25	2,587	14	7	0.01	0.00	0										488					3,075	14	7	0.00	0.00
	26	2,654	34	13	0.01	0.00	75	5	4	0.07	0.06	99					411					3,239	39	13	0.01	0.00
	27	2,337	6	5	0.00	0.00	26					0					17					2,380	6	5	0.00	0.00
	28	1,592	8	7	0.00	0.00	0					293	3	2	0.01	0.01	379					2,264	10	7	0.00	0.00
	29	753	16	15	0.02	0.02	0					365					213					1,331	16	15	0.01	0.01
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051	85	24	0.01	0.00	231	5	4	0.02	0.02	1,367	3	2	0.00	0.00	2,967					15,616	93	25	0.01	0.00

Appendix C.13. Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Susitna area/runtime group hatchery cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736	14	14	0.02	0.02	790					2,518	14	14	0.01	0.01
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573	14	14	0.01	0.01	3,353					14,661	14	14	0.00	0.00
1998	24	482	5	5	0.01	0.01	64															546	5	5	0.01	0.01
	25	4,412					449															4,861				
	26	2,668	5	3	0.00	0.00	254					98										3,020	5	3	0.00	0.00
	27	1,084	3	1	0.00	0.00	246					0										1,330	3	1	0.00	0.00
	28	1,063					88	1	0	0.01	0.00	337						Not sampled in 1998				1,488	1	0	0.00	0.00
	29	799	5	3	0.01	0.00	75					294										1,168	5	3	0.00	0.00
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	19	6	0.00	0.00	1,346	1	0	0.00	0.00	760										15,286	20	6	0.00	0.00
1999	24	117					16															133				
	25	2,587	2	1	0.00	0.00	0										488	5	4	0.01	0.01	3,075	7	4	0.00	0.00
	26	2,654	4	2	0.00	0.00	75					99					411					3,239	4	2	0.00	0.00
	27	2,337					26					0					17					2,380				
	28	1,592					0					293					379					2,264				
	29	753					0					365					213					1,331				
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051	6	2	0.00	0.00	231					1,367					2,967	5	4	0.00	0.00	15,616	11	5	0.00	0.00

Appendix C.14. Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Upper Kenai area/runtime group hatchery cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736	4	3	0.00	0.00	790					2,518	4	3	0.00	0.00
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573	4	3	0.00	0.00	3,353					14,661	4	3	0.00	0.00
1998	24	482					64															546				
	25	4,412	12	10	0.00	0.00	449															4,861	12	10	0.00	0.00
	26	2,668					254					98										3,020				
	27	1,084	5	2	0.00	0.00	246					0										1,330	5	2	0.00	0.00
	28	1,063					88					337						Not sampled in 1998				1,488				
	29	799					75					294										1,168				
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	17	10	0.00	0.00	1,346					760										15,286	17	10	0.00	0.00
1999	24	117					16															133				
	25	2,587	2	1	0.00	0.00	0										488					3,075	2	1	0.00	0.00
	26	2,654	12	9	0.00	0.00	75					99					411					3,239	12	9	0.00	0.00
	27	2,337	4	2	0.00	0.00	26					0					17					2,380	4	2	0.00	0.00
	28	1,592					0					293					379					2,264				
	29	753	6	5	0.01	0.01	0					365					213					1,331	6	5	0.00	0.00
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051	23	11	0.00	0.00	231					1,367					2,967					15,616	23	11	0.00	0.00

Appendix C.15. Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Anchorage area/runtime group hatchery cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703	19	19	0.03	0.03	2,430					4,202	19	19	0.00	0.00
	29	976					16					736	21	20	0.03	0.03	790					2,518	21	20	0.01	0.01
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573	40	28	0.03	0.02	3,353					14,661	40	28	0.00	0.00
1998	24	482					64															546				
	25	4,412					449															4,861				
	26	2,668					254					98										3,020				
	27	1,084					246					0										1,330				
	28	1,063					88					337						Not sampled in 1998				1,488				
	29	799					75					294										1,168				
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180					1,346					760										15,286				
1999	24	117					16															133				
	25	2,587					0										488					3,075				
	26	2,654					75					99					411					3,239				
	27	2,337					26					0					17					2,380				
	28	1,592					0					293					379					2,264				
	29	753					0					365					213					1,331				
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051					231					1,367					2,967					15,616				

Appendix C.16. Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Lower Kenai (early) area/runtime group hatchery cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573					3,353					14,661				
1998	24	482					64	4	3	0.06	0.05											546	4	3	0.01	0.01
	25	4,412	13	11	0.00	0.00	449	8	8	0.02	0.02											4,861	21	13	0.00	0.00
	26	2,668	43	21	0.02	0.01	254					98										3,020	43	21	0.01	0.01
	27	1,084	4	3	0.00	0.00	246					0										1,330	4	3	0.00	0.00
	28	1,063	15	11	0.01	0.01	88					337						Not sampled in 1998				1,488	15	11	0.01	0.01
	29	799					75					294										1,168				
	30	882					47					23										952				
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	76	10	0.01	0.00	1,346	12	8	0.01	0.01	760										15,286	87	27	0.01	0.00
1999	24	117					16															133				
	25	2,587	3	3	0.00	0.00	0										488					3,075	3	3	0.00	0.00
	26	2,654	5	5	0.00	0.00	75					99	17	12	0.17	0.12	411					3,239	22	13	0.01	0.00
	27	2,337					26					0					17					2,380				
	28	1,592					0					293					379					2,264				
	29	753					0					365					213					1,331				
	30	440	23	23	0.05	0.05	37					350					927					1,754	23	23	0.01	0.01
	31	382					50	5	5	0.10	0.09	225					439					1,096	5	5	0.00	0.00
	32	189					27					35					93					344				
	Total	11,051	31	23	0.00	0.00	231	5	5	0.02	0.02	1,367	17	12	0.01	0.01	2,967					15,616	53	27	0.00	0.00

Appendix C.17. Total harvest, estimated group harvest, contribution, and standard errors by area and week for the Lower Kenai (late) area/runtime group hatchery cohorts, 1997-1999.

		Westside					Alitak					Eastside					Mainland					All Areas				
Year	Week	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE	Total Harvest	Group Harvest	SE	Contrib	SE
1997	24	63					50															113				
	25	332					20															352				
	26	2,637					139					1										2,777				
	27	1,705					41					0										1,746				
	28	1,059					10					703					2,430					4,202				
	29	976					16					736					790					2,518				
	30	2,233					10					131					120					2,494				
	31	173					1					0					0					174				
	32	262					8					2					13					285				
	Total	9,440					295					1,573					3,353					14,661				
1998	24	482					64															546				
	25	4,412					449															4,861				
	26	2,668					254					98										3,020				
	27	1,084					246					0										1,330				
	28	1,063					88					337	7	6	0.02	0.02		Not sampled in 1998				1,488	7	6	0.00	0.00
	29	799	8	7	0.01	0.01	75					294	5	4	0.02	0.01						1,168	13	9	0.01	0.01
	30	882					47	5	4	0.10	0.09	23										952	5	4	0.00	0.00
	31	976					74					2										1,052				
	32	814					49					6										869				
	Total	13,180	8	7	0.00	0.00	1,346	5	4	0.00	0.00	760	11	7	0.01	0.01						15,286	24	11	0.00	0.00
1999	24	117					16															133				
	25	2,587					0										488					3,075				
	26	2,654					75					99					411					3,239				
	27	2,337					26					0					17					2,380				
	28	1,592					0					293					379					2,264				
	29	753					0					365					213					1,331				
	30	440					37					350					927					1,754				
	31	382					50					225					439					1,096				
	32	189					27					35					93					344				
	Total	11,051					231					1,367					2,967					15,616				

Appendix D.1. Summary of chinook coded wire tags randomly recovered from KMA commercial harvests sorted by release site, 1997.

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
97190039	97014	P.S.	25-Jun-97	26	255-10, 253-11	044359	1993	AK	NSRA	H	MEDVEJIE	BEAR COVE 113-41	15.341	43	42
97190127	97287	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	044534*2	1994	AK	NSRA	H	MEDVEJIE	BEAR COVE 113-41	12.432		
97190115	97046	S.G.N.	7-Jul-97	28	259-36,38	071237	1994	OR	ODFW	H	YOUNGS BAY NET PENS	BLIND SLOUGH LOW COL	3.807	13	13
97190012	97007	S.G.N.	22-Jun-97	26	253-14	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054	6	5
97190048	97024	P.S.	26-Jun-97	26	251-10	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	8	7
97190136	97507	P.S.	10-Jul-97	28	251-10,20, 252-31, 253-11, 31,35, 256-30, 258-10	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054		
97190122	97259	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	232718	1994	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ MCNARY DAM	1		
97190051	97025	P.S.	29-Jun-97	27	256-20,25	635702	1993	WA	WDFW	H	WELLS HATCHERY	COLUMBIA NEAR WELLS	1.067	2	2
97190184	97828	P.S.	24-Jul-97	30	252-31	636001	1995	WA	WDFW	H	PRIEST RAPIDS HATCH.	COLUMBIA R AT PRIEST	25.853		
97190151	97527	P.S.	17-Jul-97	29	252-31, 259-25,38,39, 262-40	312427	1994	AK	ADFG	H	ELMENDORF	CROOKED CR 244-30	4.792		
97190163	97540	P.S./S.G.N.	16-Jul-97	29	258-60,80	312514	1995	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	3.978	14	14
97190119	97243	P.S.	7-Jul-97	28	262-50, 65	070854	1994	OR	ODFW	H	ELK RIVER HATCHERY	ELK RIVER	1.678	7	6
97190127	97290	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	635759	1994	WA	COOP	W	(W) HANFORD REACH STOCK	HANFORD REACH (36)	1.011		
97190125	97273	P.S.	8-Jul-97	28	255-20, 256-20, 258-10, 259-42, 262-40, 65	044420	1993	AK	SSRA	H	CARROLL INLET	HERRING COVE 101-45	9.896		
97190122	97263	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	044407	1993	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	2.272		
97190147	97523	P.S.	16-Jul-97	29	262-50,60,65	212609	1994	WA	MAKA	H	HOKO FALLS HATCHERY	HOKO R 19.0148	2.265	14	14
97190177	97548	P.S.	22-Jul-97	30	251-20, 252-32	312320	1992	AK	ADFG	H	CROOKED CREEK	HOMER SPIT 241-13	1.325		
97190075	97040	P.S.	1-Jul-97	27	256-20	312250	1993	AK	ADFG	W	(W) KENAI R	KENAI R 244-30			
97190151	97526	P.S.	17-Jul-97	29	252-31, 259-25,38,39, 262-40	312545	1994	AK	ADFG	W	(W) KENAI R	KENAI R 244-30			
97190119	97237	P.S.	7-Jul-97	28	262-50, 65	635517	1994	WA	WDFW	H	KLICKITAT HATCHERY	KLICKITAT R 30.0002	22.265	88	88
97190122	97249	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	070450	1994	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	6.447		
97190163	97534	P.S./S.G.N.	16-Jul-97	29	258-60,80	312516	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014	4	3
97190151	97525	P.S.	17-Jul-97	29	252-31, 259-25,38,39, 262-40	312515	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014		
97190155	97528	P.S.	17-Jul-97	29	259-25	312515	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014		
97190168	97542	P.S.	23-Jul-97	30	262-20,60	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168	26	25
97190119	97245	P.S.	7-Jul-97	28	262-50, 65	181238	1993	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO SPAWN CHAN	6.304	25	24
97190122	97268	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181238	1993	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO SPAWN CHAN	6.304		
97190127	97286	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	181229	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO SPAWN CHAN	15.351		
97190136	97506	P.S.	10-Jul-97	28	251-10,20, 252-31, 253-11, 31,35, 256-30, 258-10	181229	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO SPAWN CHAN	15.351		
97190136	97508	P.S.	10-Jul-97	28	251-10,20, 252-31, 253-11, 31,35, 256-30, 258-10	182463	1995	BC	CDFO	H	H-GOLD RIVER PIP	R-BURMAN RIVER	4.825		
97190136	97509	P.S.	10-Jul-97	28	251-10,20, 252-31, 253-11, 31,35, 256-30, 258-10	182146	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.036		
97190142	97516	P.S.	16-Jul-97	29	256-20,30, 262-25,55	181558	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.151		
97190177	97547	P.S.	22-Jul-97	30	251-20, 252-32	181556	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.151		
97190009	97004	P.S.	19-Jun-97	25	257-10,20	181363	1993	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	30.277	30	30
97190072	97038	S.G.N.	1-Jul-97	27	253-11,13,14,31	180633	1993	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	8.598	17	16
97190116	97048	P.S.	7-Jul-97	28	258-10,40, 259-41,42	181363	1993	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	30.277	101	100
97190126	97274	P.S.	9-Jul-97	28	251-20	181815	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	25.278	89	88
97190122	97256	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181815	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	25.278		
97190128	97292	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	181816	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	22.886		
97190142	97515	P.S.	16-Jul-97	29	256-20,30, 262-25,55	180633	1993	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	8.598		
97190128	97294	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	181954	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA RIVER	16.93		
97190147	97522	P.S.	16-Jul-97	29	262-50,60,65	181954	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA RIVER	16.93	105	105
97190160	97533	P.S.	17-Jul-97	29	262-45,50,60	181558	1993	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA RIVER	14.708	91	91
97190137	97510	P.S.	8-Jul-97	28	253-31	181318	1994	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.066	4	3
97190127	97284	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	181318	1994	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.066		
97190019	97012	P.S.	21-Jun-97	25	255-10,20, 254-10	181434	1994	BC	CDFO	H	H-KITIMAT RIVER	R-KITIMAT LOWER	8.29	14	13
97190119	97049	P.S.	7-Jul-97	28	262-50, 65	181434	1994	BC	CDFO	H	H-KITIMAT RIVER	R-KITIMAT LOWER	8.29	33	32

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Appendix D.1. (page 2 of 3)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
97190122	97248	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181435	1994	BC	CDFO	H	H-KITIMAT RIVER	R-KITIMAT LOWER	7.785		
97190142	97513	P.S.	16-Jul-97	29	256-20,30, 262-25,55	181434	1994	BC	CDFO	H	H-KITIMAT RIVER	R-KITIMAT LOWER	8.29		
97190046	97021	P.S.	25-Jun-97	26	253-11, 251-10	181050	1992	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.014	3	2
97190134	97505	P.S.	9-Jul-97	28	258-40	181547	1993	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	4.959	17	16
97190122	97260	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382		
97190122	97267	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382		
97190011	97006	P.S.	20-Jun-97	25	257-41	181860	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	58.123	58	58
97190124	97271	P.S.	8-Jul-97	28	259-41,42 258-10	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571	162	161
97190119	97239	P.S.	7-Jul-97	28	262-50, 65	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571	193	192
97190119	97244	P.S.	7-Jul-97	28	262-50, 65	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571	193	192
97190126	97282	P.S.	9-Jul-97	28	251-20	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571	170	170
97190122	97264	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571		
97190159	97529	P.S.	18-Jul-97	29	252-31, 253-31, 259-39	181860	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	58.123		
97190179	97549	P.S.	23-Jul-97	30	253-12	181858	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	10.1	121	121
97190184	97824	P.S.	24-Jul-97	30	252-31	181346	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	18.996		
97190184	97827	P.S.	24-Jul-97	30	252-31	181347	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	29.73		
97190184	97829	P.S.	24-Jul-97	30	252-31	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686		
97190053	97028	P.S.	30-Jun-97	27	251-10, 253-31	181841	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	45.305	88	88
97190119	97241	P.S.	7-Jul-97	28	262-50, 65	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	197	197
97190126	97276	P.S.	9-Jul-97	28	251-20	181841	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	45.305	159	158
97190122	97253	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181841	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	45.305		
97190122	97255	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181841	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	45.305		
97190128	97297	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	181841	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	45.305		
97190128	97299	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	181841	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	45.305		
97190145	97519	P.S.	15-Jul-97	29	262-60	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	309	309
97190147	97521	P.S.	16-Jul-97	29	262-50,60,65	181426	1993	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	51.447	320	320
97190039	97016	P.S.	25-Jun-97	26	255-10, 253-11	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	3	2
97190040	97017	P.S.	25-Jun-97	26	251-10,20,40	181542	1993	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	28.353	79	79
97190047	97023	P.S.	25-Jun-97	26	251-10,20,82,40, 253-31	182223	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013		
97190053	97026	P.S.	30-Jun-97	27	251-10, 253-31	182222	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	2	1
97190054	97029	P.S.	29-Jun-97	27	251-20	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	2	1
97190054	97030	P.S.	29-Jun-97	27	251-20	181458	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.851	82	81
97190054	97031	P.S.	29-Jun-97	27	251-20	181455	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.475	81	81
97190054	97032	P.S.	29-Jun-97	27	251-20	181458	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.851	82	81
97190055	97033	P.S.	29-Jun-97	27	251-10,20	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	2	1
97190055	97035	P.S.	29-Jun-97	27	251-10,20	181459	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	48.745	95	95
97190055	97036	P.S.	29-Jun-97	27	251-10,20	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	2	1
97190072	97037	S.G.N.	1-Jul-97	27	253-11,13,14,31	181457	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	44.723	87	87
97190116	97047	P.S.	7-Jul-97	28	258-10,40, 259-41,42	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	3	3
97190124	97272	P.S.	8-Jul-97	28	259-41,42 258-10	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	3	3
97190119	97242	P.S.	7-Jul-97	28	262-50, 65	182225	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	4	3
97190112	97045	S.G.N.	6-Jul-97	28	253-11, 254-40	181457	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	44.723	157	156
97190126	97281	P.S.	9-Jul-97	28	251-20	182222	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	4	3
97190121	97246	P.S.	7-Jul-97	28	255-20, 262-40	181460	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	34.166		
97190122	97250	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181546	1993	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	18.3		
97190122	97251	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	182225	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013		
97190122	97258	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181457	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	44.723		

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Appendix D.1. (page 3 of 3)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
97190127	97283	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	182223	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013		
97190127	97288	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	182225	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013		
97190127	97291	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	181457	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	44.723		
97190128	97293	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	182224	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013		
97190160	97531	P.S.	17-Jul-97	29	262-45,50,60	181456	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	42.455	264	264
97190160	97532	P.S.	17-Jul-97	29	262-45,50,60	181458	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.851	260	260
97190177	97545	P.S.	22-Jul-97	30	251-20, 252-32	181460	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	34.166		
97190075	97039	P.S.	1-Jul-97	27	256-20	181334	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.213	26	25
97190126	97278	P.S.	9-Jul-97	28	251-20	181334	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.213	46	46
97190122	97265	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	181334	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.213		
97190128	97295	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	181334	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.213		
97190119	97050	P.S.	7-Jul-97	28	262-50, 65	181805	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	6.148	24	24
97190126	97275	P.S.	9-Jul-97	28	251-20	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	16	15
97190128	97298	P.S.	10-Jul-97	28	251-20, 253-31, 259-39,42, 262-60	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493		
97190145	97518	P.S.	15-Jul-97	29	262-60	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	28	27
97190147	97520	P.S.	16-Jul-97	29	262-50,60,65	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	28	27
97190142	97514	P.S.	16-Jul-97	29	256-20,30, 262-25,55	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493		
97190168	97541	P.S.	23-Jul-97	30	262-20,60	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	10	10
97190177	97546	P.S.	22-Jul-97	30	251-20, 252-32	181805	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	6.148		
97190077	97042	P.S.	27-Jun-97	26	256-15,20,25	181841	1994	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R LOWER	9.356	26	26
97190126	97277	P.S.	9-Jul-97	28	251-20	181841	1994	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R LOWER	9.356	33	32
97190163	97539	P.S./S.G.N.	16-Jul-97	29	258-60,80	182461	1995	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	5.538	20	19
97190147	97524	P.S.	16-Jul-97	29	262-50,60,65	181840	1994	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	5.833	36	36
97190140	97511	P.S.	15-Jul-97	29	259-21,25	182461	1995	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	5.538		
97190184	97826	P.S.	24-Jul-97	30	252-31	182461	1995	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	5.538		
97190016	97011	P.S./S.G.N.	19-Jun-97	25	255-10,20	181422	1993	BC	CDFO	H	H-TAHSIS PIP	R-TAHSIS RIVER	2.987	5	4
97190053	97027	P.S.	30-Jun-97	27	251-10, 253-31	181422	1993	BC	CDFO	H	H-TAHSIS PIP	R-TAHSIS RIVER	2.987	6	5
97190127	97285	P.S.	9-Jul-97	28	254-10, 255-20, 262-60	181824	1994	BC	CDFO	H	H-TAHSIS PIP	R-TAHSIS RIVER	3.482		
97190176	97544	P.S.	23-Jul-97	30	256-30, 258-60	181823	1994	BC	CDFO	H	H-TAHSIS PIP	R-TAHSIS RIVER	3.482		
97190124	97269	P.S.	8-Jul-97	28	259-41,42 258-10	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	3	3
97190170	97543	P.S.	22-Jul-97	30	262-60	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
97190108	97044	P.S.	5-Jul-97	27	251-20, 255-10, 256-20,25,30	212624	1994	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.062	2	1
97190119	97240	P.S.	7-Jul-97	28	262-50, 65	212624	1994	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.062	4	4
97190163	97535	P.S./S.G.N.	16-Jul-97	29	258-60,80	071252	1995	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.09	4	3
97190183	97550	P.S.	25-Jul-97	30	251-10,20, 252-30,34, 253-31, 256-30, 258-40, 259-2	071252	1995	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.09		
97190041	97020	P.S.	26-Jun-97	26	256-20	070858	1994	OR	ODFW	H	SOUTH SANTIAM HATCH	SANTIAM R, S FK	9.394	26	26
97190122	97254	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	070857	1994	OR	ODFW	H	SOUTH SANTIAM HATCH	SANTIAM R, S FK	13.881	0	0
97190124	97270	P.S.	8-Jul-97	28	259-41,42 258-10	312508	1995	AK	ADFG	H	ELMENDORF	SHIP CR 247-50	5.771	19	19
97190163	97537	P.S./S.G.N.	16-Jul-97	29	258-60,80	312508	1995	AK	ADFG	H	ELMENDORF	SHIP CR 247-50	5.771	21	20
97190140	97512	P.S.	15-Jul-97	29	259-21,25	312508	1995	AK	ADFG	H	ELMENDORF	SHIP CR 247-50	5.771		
97190119	97238	P.S.	7-Jul-97	28	262-50, 65	075117	1994	OR	ODFW	H	ROCK CREEK	UMPQUA R	2.111	8	8
97190122	97262	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	070752	1995	OR	ODFW	H	ROCK CREEK	UMPQUA R	1.05		
97190122	97266	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	635149	1992	WA	WDFW	H	DRYDEN POND	WENATCHEE R 45.0030	1.032		
97190040	97018	P.S.	25-Jun-97	26	251-10,20,40	070955	1994	OR	ODFW	H	WILLAMETTE HATCHERY	WILLAMETTE R-1	6.097	17	17
97190122	97252	P.S.	8-Jul-97	28	251-20,262-40, 50, 262-60,65	070955	1994	OR	ODFW	H	WILLAMETTE HATCHERY	WILLAMETTE R-1	6.097		
97190184	97825	P.S.	24-Jul-97	30	252-31	0501011213	1995	WA	FWS	H	PROSSER HATCHERY	YAKIMA @ PROSSER HAT	9.415		

Appendix D.2. Summary of chinook coded wire tags randomly recovered from KMA commercial harvests sorted by release site, 1998.

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
98190155	98457	P.S.	15-Jul-98	29	258-10,40,60, 259-42	040709	1995	AK	NSRA	H	MEDVEJIE	BEAR COVE 113-41	10.973	20	19
98190058	98971	P.S.	11-Jun-98	24	257-10,20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	4	3
98190003	98851	S.G.N.	10-Jun-98	24	254-10,40	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	4	3
98190007	98854	S.G.N.	11-Jun-98	24	253-11, 13, 14	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	4	3
98190019	98863	S.G.N.	11-Jun-98	24	253-11,13,14	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	4	3
98190065	98977	P.S.	19-Jun-98	25	257-10, 20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	7	7
98190065	98978	P.S.	19-Jun-98	25	257-10, 20	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054	6	5
98190034	98873	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190034	98875	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190034	98877	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190034	98887	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190039	98919	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190039	98925	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190039	98927	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190028	98867	P.S.	15-Jun-98	25	252-34	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	0	0
98190050	98954	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	7	6
98190050	98962	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	7	6
98190084	97835	P.S./S.G.N.	26-Jun-98	26	253-11,31, 254-40	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	7	6
98190055	98990	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783		
98190115	97873	P.S./S.G.N.	29-Jun-98	27	253-31,35	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054	3	2
98190128	97890	S.G.N.	7-Jul-98	28	253-11,13,14	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054	4	4
98190171	98471	P.S./S.G.N.	8-Jul-98	28	251-10, 253-31,35	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
98190166	98466	P.S.	15-Jul-98	29	259-38	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	7	7
98190185	98495	P.S.	17-Jul-98	29	256-20, 257-10,20	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054		
98190254	98699	S.G.N.	27-Jul-98	31	253-11, 254-40	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	16	15
98190038	98917	P.S./S.G.N.	16-Jun-98	25	254-10, 20, 40	070237	1995	OR	ODFW	H	CLACKAMAS HATCHERY	CLACKAMAS R	13.537	28	28
98190164	98461	P.S.	15-Jul-98	29	254-30, 255-20, 262-50	070859	1994	OR	ODFW	H	CLACKAMAS HATCHERY	CLACKAMAS R	14.591		
98190164	98460	P.S.	15-Jul-98	29	254-30, 255-20, 262-50	636054	1996	WA	WDFW	H	WELLS HATCHERY	COL.R ROCKY R-WELLS	1.038		
98190036	98913	P.S.	16-Jun-98	25	256-20	233049	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ MCNARY DAM	1	2	2
98190034	98889	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	233025	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ RM 141	1	2	2
98190055	98988	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	233034	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ RM 141	1		
98190133	97891	P.S.	7-Jul-98	28	256-20	232719	1994	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ RM 141	1	2	1
98190215	98679	P.S.	22-Jul-98	30	253-31, 256-20,25,30	233034	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ RM 141	1	2	2
98190050	98958	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	635843	1994	WA	WDFW	H	TURTLE ROCK HATCHERY	COL.R. @ TURTLE ROCK	1.052	3	2
98190119	97880	P.S./S.G.N.	30-Jun-98	27	256-20	635705	1993	WA	WDFW	H	TURTLE ROCK HATCHERY	COL.R. @ TURTLE ROCK	1.495	2	2
98190207	98667	P.S.	17-Jul-98	29	253-31, 258-10	630120	1996	WA	WDFW	H	TURTLE ROCK HATCHERY	COL.R. @ TURTLE ROCK	1.047	3	2
98190050	98955	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	636001	1995	WA	WDFW	H	PRIEST RAPIDS HATCH.	COLUMBIA R AT PRIEST	25.853	64	63
98190033	98872	P.S.	16-Jun-98	25	256-20	053954	1995	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	2.802	6	5
98190034	98884	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	053861	1995	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	3.939	8	8
98190035	98890	P.S.	16-Jun-98	25	251-20,41	053612	1994	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	2.237		
98190174	98478	P.S.	8-Jul-98	28	258-60,80	051956	1993	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	1.121	2	2
98190178	98483	P.S./S.G.N.	10-Jul-98	28	253-31,35	053612	1994	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	2.237	4	4
98190189	98497	S.G.N.	17-Jul-98	29	254-10	053612	1994	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	2.237	6	5

-Continued-

Appendix D.2. (page 2 of 6)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SB
98190207	98668	P.S.	17-Jul-98	29	253-31, 258-10	054219	1996	WA	FWS	H	QUINAULT NFH -COOK C	COOK CR 21.0429	2.854	7	7
98190074	98985	P.S./S.G.N.	19-Jun-98	25	251-11, 253-35	312512	1995	AK	ADFG	H	ELMENDORF	CROOKED CR 244-30	4.804	10	9
98190178	98486	P.S./S.G.N.	10-Jul-98	28	253-31,35	044430	1993	AK	ADFG	H	CRYSTAL LAKE	CRYSTAL CR 106-44	7.262	14	14
98190007	98853	S.G.N.	11-Jun-98	24	253-11, 13, 14	312514	1995	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	3.978	5	5
98190048	98951	P.S.	21-Jun-98	26	256-15, 20	312603	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005	2	2
98190054	98987	P.S.	23-Jun-98	26	254-10, 256-20	312606	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009	2	2
98190053	98967	P.S./S.G.N.	22-Jun-98	26	256-20, 257-20,41	312603	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005		
98190099	97856	P.S.	1-Jul-98	27	256-20,25	312605	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005	1	1
98190100	97859	P.S.	1-Jul-98	27	256-20,25, 259-38	312603	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005	1	1
98190096	97851	P.S./S.G.N.	29-Jun-98	27	252-34, 256-20, 257-20,41	312605	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005		
98190096	97852	P.S./S.G.N.	29-Jun-98	27	252-34, 256-20, 257-20,41	312607	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.011		
98190096	97855	P.S./S.G.N.	29-Jun-98	27	252-34, 256-20, 257-20,41	312605	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005		
98190126	97888	P.S.	7-Jul-98	28	257-10,20	312606	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009	1	0
98190137	97894	P.S.	9-Jul-98	28	252-10,30, 258-10,40	312606	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009		
98190166	98464	P.S.	15-Jul-98	29	259-38	312603	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005	3	2
98190207	98669	P.S.	17-Jul-98	29	253-31, 258-10	312605	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.005	3	2
98190090	97844	P.S.	27-Jun-98	26	256-20	071349	1995	OR	ODFW	H	FALL CREEK	FALL CR (ALSEA R)	3.443	8	8
98190075	98999	P.S.	25-Jun-98	26	256-20,30	500427	1995	AK	DIPC	H	GASTINEAU	FISH CR 111-50	8.883	22	21
98190036	98915	P.S.	16-Jun-98	25	256-20	312430	1994	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	1.024	2	2
98190070	98982	P.S.	22-Jun-98	26	256-20	312430	1994	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	1.024	3	2
98190080	97832	P.S./S.G.N.	26-Jun-98	26	251-20, 252-33, 253-11,13,14,31	312511	1995	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	2.484		
98190115	97876	P.S./S.G.N.	29-Jun-98	27	253-31,35	312511	1995	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	2.484	4	3
98190182	98490	P.S.	11-Jul-98	28	257-10,20, 258-80,90	312558	1996	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	1.979		
98190035	98898	P.S.	16-Jun-98	25	251-20,41	636118	1995	WA	WDFW	W	(W) HANFORD REACH STOCK	HANFORD REACH (36)	1.004		
98190050	98957	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	044583	1994	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	14.09	35	34
98190171	98473	P.S./S.G.N.	8-Jul-98	28	251-10, 253-31,35	044407	1993	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	2.272	5	4
98190208	98673	P.S.	16-Jul-98	29	253-31, 258-10, 259-38,40	212953	1996	WA	MAKA	H	HOKO FALLS HATCHERY	HOKO R 19.0148	1.014		
98190074	98984	P.S./S.G.N.	19-Jun-98	25	251-11, 253-35	312432	1994	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	5.364	11	11
98190047	98949	P.S./S.G.N.	19-Jun-98	25	254-10, 256-20, 257-20,41	312432	1994	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	5.364		
98190054	98986	P.S.	23-Jun-98	26	254-10, 256-20	312432	1994	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	5.364	13	13
98190075	99000	P.S.	25-Jun-98	26	256-20,30	312560	1996	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	5.611	14	13
98190174	98477	P.S.	8-Jul-98	28	258-60,80	312433	1994	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	3.04	7	6
98190178	98484	P.S./S.G.N.	10-Jul-98	28	253-31,35	312319	1992	AK	ADFG	H	CROOKED CREEK	HOMER SPIT 241-13	2.092	4	4
98190127	97889	P.S./S.G.N.	7-Jul-98	28	253-11, 254-40	312560	1996	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	5.611	11	11
98190155	98453	P.S.	15-Jul-98	29	258-10,40,60, 259-42	312581	1996	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	2.571	5	4
98190204	98500	P.S.	16-Jul-98	29	253-31	312433	1994	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	3.04	8	7
98190246	98694	P.S.	23-Jul-98	30	257-10,20	312433	1994	AK	ADFG	H	ELMENDORF	HOMER SPIT 241-13	3.04	5	4
98190175	98480	P.S.	9-Jul-98	28	258-40,60	044711	1995	AK	NSRA	H	HIDDEN FALLS	KASNYKU BAY 112-11	10.561	23	22
98190172	98474	S.G.N.	8-Jul-98	28	257-40	312259	1992	AK	ADFG	W	(W) KENAI R	KENAI R 244-30			
98190171	98472	P.S./S.G.N.	8-Jul-98	28	251-10, 253-31,35	312248	1993	AK	ADFG	W	(W) KENAI R	KENAI R 244-30			
98190042	98935	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	636007	1995	WA	WDFW	H	KLICKITAT HATCHERY	KLICKITAT R 30.0002	23.167	48	48
98190035	98895	P.S.	16-Jun-98	25	251-20,41	636007	1995	WA	WDFW	H	KLICKITAT HATCHERY	KLICKITAT R 30.0002	23.167		
98190175	98479	P.S.	9-Jul-98	28	258-40,60	636006	1995	WA	WDFW	H	KLICKITAT HATCHERY	KLICKITAT R 30.0002	20.272	44	44

-Continued-

Appendix D.2. (page 3 of 6)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
98190115	97877	P.S./S.G.N.	29-Jun-98	27	253-31,35	635663	1994	WA	WDFW	H	LEWIS RIVER HATCHERY	LEWIS R 27.0168	7.327	11	10
98190185	98496	P.S.	17-Jul-98	29	256-20, 257-10,20	635663	1994	WA	WDFW	H	LEWIS RIVER HATCHERY	LEWIS R 27.0168	7.327		
98190036	98912	P.S.	16-Jun-98	25	256-20	312659	1996	AK	ADFG	H	ELMENDORF	LOWELL CR 231-30	2.522	5	5
98190090	97843	P.S.	27-Jun-98	26	256-20	312559	1996	AK	ADFG	H	ELMENDORF	LOWELL CR 231-30	2.522	6	6
98190107	97865	P.S.	3-Jul-98	27	256-20	312559	1996	AK	ADFG	H	ELMENDORF	LOWELL CR 231-30	2.522	4	3
98190043	98941	P.S.	18-Jun-98	25	254-10, 256-20	050101121	1995	WA	FWS	H	LTL WHITE SALMON NFH	LTL WHITE SALMON@NFH	10.65	22	22
98190043	98943	P.S.	18-Jun-98	25	254-10, 256-20	312608	1996	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.008	2	2
98190101	97860	P.S.	2-Jul-98	27	256-20	312435	1994	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.01	1	1
98190115	97875	P.S./S.G.N.	29-Jun-98	27	253-31,35	312515	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014	2	1
98190119	97881	P.S./S.G.N.	30-Jun-98	27	256-20	312515	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014	2	1
98190137	97893	P.S.	9-Jul-98	28	252-10,30, 258-10,40	312608	1996	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.008		
98190138	97895	P.S./S.G.N.	9-Jul-98	28	257-20,41, 258-60,80	312608	1996	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.008		
98190166	98465	P.S.	15-Jul-98	29	259-38	215513	1996	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	7.669	20	20
98190084	97834	P.S./S.G.N.	26-Jun-98	26	253-11,31, 254-40	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168	28	27
98190055	98989	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168		
98190055	98997	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168		
98190125	97886	P.S./S.G.N.	7-Jul-98	28	253-31,35	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168	22	22
98190178	98487	P.S./S.G.N.	10-Jul-98	28	253-31,35	181230	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	13.913	28	27
98190213	98674	P.S.	22-Jul-98	30	254-50, 256-20, 262-45,55	181230	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	13.913		
98190170	98469	P.S.	15-Jul-98	29	256-20,25,30, 262-55	181229	1994	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO SPAWN CHAN	15.351		
98190064	98974	P.S.	16-Jun-98	25	256-20; 257-10,20	182146	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.036		
98190055	98991	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	182146	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.036		
98190039	98926	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	181816	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	22.886	48	47
98190050	98961	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	181816	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	22.886	56	56
98190084	97833	P.S./S.G.N.	26-Jun-98	26	253-11,31, 254-40	181815	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	25.278	62	62
98190155	98458	P.S.	15-Jul-98	29	258-10,40,60, 259-42	181816	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	22.886	41	41
98190207	98670	P.S.	17-Jul-98	29	253-31, 258-10	182046	1996	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	35.664	93	93
98190222	98684	P.S.	23-Jul-98	30	254-20,30,50	181815	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	25.278	55	54
98190004	98852	P.S./S.G.N.	11-Jun-98	24	253-31, 254-10,20	181558	1993	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA RIVER	14.708	20	20
98190019	98864	S.G.N.	11-Jun-98	24	253-11,13,14	181954	1994	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA RIVER	16.93	23	23
98190009	98857	S.G.N.	11-Jun-98	24	254-40	181318	1994	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.066	1	1
98190154	97900	P.S.	15-Jul-98	29	253-31	182254	1995	BC	CDFO	H	H-KITIMAT RIVER	R-KITIMAT LOWER	17.654	46	46
98190053	98968	P.S./S.G.N.	22-Jun-98	26	256-20, 257-20,41	182343	1995	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.01		
98190093	97847	P.S.	29-Jun-98	27	257-20,50	181423	1993	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.003	2	2
98190122	97884	P.S.	5-Jul-98	28	257-10,20	180641	1994	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.017	1	0
98190091	97845	P.S.	27-Jun-98	26	256-20,25	180359	1995	BC	CDFO	H	H-LITTLE QUALICUM R	R-LITTLE QUALICUM R	33.69	83	83
98190034	98881	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382	15	15
98190034	98882	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382	15	15
98190034	98888	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382	15	15
98190123	97885	P.S.	6-Jul-98	28	257-10,20	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382	7	7
98190016	98860	P.S.	11-Jun-98	24	253-11	181346	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	18.996	26	26
98190034	98879	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	181346	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	18.996	40	39
98190042	98931	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	68	68

-Continued-

Appendix D.2. (page 4 of 6)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
98190042	98936	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	68	68
98190035	98892	P.S.	16-Jun-98	25	251-20,41	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686		
98190073	98983	P.S.	22-Jun-98	26	257-10, 20	181862	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	23.416	57	57
98190050	98953	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	181860	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	58.123	143	143
98190050	98959	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	81	80
98190050	98963	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	181862	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	23.416	58	57
98190087	97840	S.G.N.	26-Jun-98	26	254-10	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	81	80
98190106	97863	P.S.	3-Jul-98	27	254-30,50	181346	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	18.996	28	28
98190140	97897	S.G.N.	9-Jul-98	28	253-11, 254-40	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	65	64
98190134	97892	P.S./S.G.N.	8-Jul-98	28	256-20, 257-40,41	181347	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	29.73		
98190182	98488	P.S.	11-Jul-98	28	257-10,20, 258-80,90	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686		
98190183	98493	P.S.	16-Jul-98	29	258-40	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	59	58
98190164	98462	P.S.	15-Jul-98	29	254-30, 255-20, 262-50	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571		
98190164	98463	P.S.	15-Jul-98	29	254-30, 255-20, 262-50	181862	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	23.416		
98190208	98672	P.S.	16-Jul-98	29	253-31, 258-10, 259-38,40	181863	1996	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	10.04		
98190224	98690	P.S.	24-Jul-98	30	253-11,31	180635	1993	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	31.587	68	68
98190253	98697	P.S.	25-Jul-98	30	259-39	181862	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	23.416	51	50
98190234	98692	P.S.	25-Jul-98	30	254-10,30, 257-20	181346	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	18.996	0	0
98190276	11158	P.S.	30-Jul-98	31	256-20,25	181346	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	18.996	106	105
98190065	98975	P.S.	19-Jun-98	25	257-10, 20	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	134	133
98190034	98876	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	181350	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	33.714	70	70
98190034	98883	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	181350	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	33.714	70	70
98190039	98920	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	181349	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	33.713	70	70
98190042	98937	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	181349	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	33.713	70	70
98190055	98994	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	181349	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	33.713		
98190170	98470	P.S.	15-Jul-98	29	256-20,25,30, 262-55	181426	1993	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	51.447		
98190215	98676	P.S.	22-Jul-98	30	253-31, 256-20,25,30	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	108	107
98190221	98683	S.G.N.	23-Jul-98	30	254-10	181350	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	33.714	73	72
98190213	98675	P.S.	22-Jul-98	30	254-50, 256-20, 262-45,55	181557	1993	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	41.849	0	0
98190269	11153	P.S.	30-Jul-98	31	253-31	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	277	277
98190114	97871	P.S./S.G.N.	29-Jun-98	27	257-10,20	181028	1993	BC	CDFO	H	H-OWEEKENO CDP	R-RIVERS INLET	1.768	4	4
98190295	11162	P.S.	5-Aug-98	32	256-25	181029	1993	BC	CDFO	H	H-OWEEKENO CDP	R-RIVERS INLET	2.07	33	33
98190016	98861	P.S.	11-Jun-98	24	253-11	181459	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	48.745	67	67
98190034	98885	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	182224	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	2	2
98190039	98921	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	182225	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	2	2
98190042	98939	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	181455	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.475	86	86
98190035	98896	P.S.	16-Jun-98	25	251-20,41	182227	1995	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1		
98190069	98980	P.S.	21-Jun-98	26	257-10, 20	181460	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	34.166	83	83
98190051	98965	P.S.	21-Jun-98	26	256-20	181456	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	42.455	105	104
98190087	97841	S.G.N.	26-Jun-98	26	254-10	182228	1995	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1	2	2
98190114	97872	P.S./S.G.N.	29-Jun-98	27	257-10,20	181457	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	44.723	106	105
98190094	97849	P.S.	29-Jun-98	27	256-20	181456	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	42.455	63	62
98190115	97874	P.S./S.G.N.	29-Jun-98	27	253-31,35	182223	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	2	1

-Continued-

Appendix D.2. (page 5 of 6)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
98190096	97853	P.S./S.G.N.	29-Jun-98	27	252-34, 256-20, 257-20,41	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021		
98190145	97898	P.S.	8-Jul-98	28	254-50	181458	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.851	83	82
98190169	98467	P.S.	15-Jul-98	29	251-20, 253-31	182225	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	3	2
98190170	98468	P.S.	15-Jul-98	29	256-20,25,30, 262-55	182222	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021		
98190217	98682	P.S.	21-Jul-98	30	253-31	182223	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	2	2
98190223	98685	P.S.	22-Jul-98	30	254-20,30	182220	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	2	2
98190223	98686	P.S.	22-Jul-98	30	254-20,30	181459	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	48.745	105	105
98190223	98687	P.S.	22-Jul-98	30	254-20,30	182223	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	2	2
98190224	98688	P.S.	24-Jul-98	30	253-11,31	182223	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	2	2
98190224	98689	P.S.	24-Jul-98	30	253-11,31	182220	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	2	2
98190234	98691	P.S.	25-Jul-98	30	254-10,30, 257-20	181458	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	41.851		
98190252	98695	P.S.	26-Jul-98	31	251-20, 253-35, 259-36,38	182220	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	6	5
98190261	11151	P.S.	29-Jul-98	31	256-20,30, 262-45,65	182222	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021		
98190275	11157	P.S.	30-Jul-98	31	251-10,40, 252-31,35, 253-12,35, 259-37	182224	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013		
98190280	11159	P.S.	3-Aug-98	32	256-30	181456	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	42.455	678	677
98190183	98492	P.S.	16-Jul-98	29	258-40	182735	1996	BC	CDFO	H	H-SNOOTLI CREEK	R-SALLOOMT RIVER	1.485	3	2
98190155	98456	P.S.	15-Jul-98	29	258-10,40,60, 259-42	182733	1995	BC	CDFO	H	H-SPIUS CREEK	R-SALMON R/THOMPSON	1.384	2	2
98190215	98680	P.S.	22-Jul-98	30	253-31, 256-20,25,30	182733	1995	BC	CDFO	H	H-SPIUS CREEK	R-SALMON R/THOMPSON	1.384	3	2
98190043	98942	P.S.	18-Jun-98	25	254-10, 256-20	181333	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.209	27	27
98190215	98678	P.S.	22-Jul-98	30	253-31, 256-20,25,30	181334	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.213	29	28
98190252	98696	P.S.	26-Jul-98	31	251-20, 253-35, 259-36,38	181334	1994	BC	CDFO	H	H-SAN JUAN RIVER CDP	R-SAN JUAN RIVER	13.213	74	73
98190034	98880	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	181805	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	6.148	13	12
98190050	98952	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	181805	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	6.148	15	15
98190086	97838	P.S.	26-Jun-98	26	254-10, 255-20	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	11	11
98190055	98996	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493		
98190104	97861	S.G.N.	3-Jul-98	27	253-11, 254-40	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	7	6
98190106	97864	P.S.	3-Jul-98	27	254-30,50	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	7	6
98190126	97887	P.S.	7-Jul-98	28	257-10,20	181805	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	6.148	6	6
98190253	98698	P.S.	25-Jul-98	30	259-39	181861	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	4.493	10	9
98190271	11155	P.S.	31-Jul-98	31	251-10, 253-13, 254-40	181805	1994	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	6.148	34	34
98190059	98972	P.S.	11-Jun-98	24	257-10, 20	181641	1994	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R LOWER	9.356	12	12
98190119	97879	P.S./S.G.N.	30-Jun-98	27	256-20	182462	1995	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R LOWER	8.954	13	13
98190027	98866	P.S.	15-Jun-98	25	256-20	182461	1995	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	5.538	12	11
98190216	98681	P.S.	23-Jul-98	30	258-20,60	182358	1996	BC	CDFO	H	H-NITINAT RIVER	R-SOOKE HRBR	3.115	10	10
98190008	98855	S.G.N.	11-Jun-98	24	254-10	181823	1994	BC	CDFO	H	H-TAHSIS PIP	R-TAHSIS RIVER	3.482	5	4
98190291	11161	P.S.	7-Aug-98	32	256-20,30	181823	1994	BC	CDFO	H	H-TAHSIS PIP	R-TAHSIS RIVER	3.482	56	55
98190034	98874	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190034	98878	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190039	98928	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190042	98929	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190042	98932	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190042	98934	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190045	98944	P.S.	20-Jun-98	25	255-20, 256-15,20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2

-Continued-

Appendix D.2. (page 6 of 6)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
98190035	98897	P.S.	16-Jun-98	25	251-20,41	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1		
98190086	97839	P.S.	26-Jun-98	26	254-10, 255-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190055	98992	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1		
98190055	98995	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1		
98190089	97842	P.S.	26-Jun-98	26	251-20,41,84	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1		
98190177	98482	P.S.	9-Jul-98	28	257-10, 20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	1	0
98190174	98476	P.S.	8-Jul-98	28	258-60,80	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	2
98190269	11154	P.S.	30-Jul-98	31	253-31	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	6	5
98190155	98459	P.S.	15-Jul-98	29	258-10,40,60, 259-42	182832	1996	BC	CDFO	H	H-MASSET CDP	R-YAKOUN RIVER	6.245	11	11
98190039	98922	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	212948	1995	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.135	2	2
98190183	98494	P.S.	16-Jul-98	29	258-40	212961	1996	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.361	2	2
98190155	98454	P.S.	15-Jul-98	29	258-10,40,60, 259-42	092149	1996	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.051	2	1
98190199	98498	P.S.	15-Jul-98	29	258-40	092149	1996	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.051	2	1
98190208	98671	P.S.	16-Jul-98	29	253-31, 258-10, 259-38,40	092149	1996	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.051		
98190155	98455	P.S.	15-Jul-98	29	258-10,40,60, 259-42	075333	1995	OR	ODFW	H	CLACKAMAS HATCHERY	SANDY R	18.433	33	33
98190058	98969	P.S.	11-Jun-98	24	257-10,20	312429	1994	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.855	4	3
98190066	98979	S.G.N.	20-Jun-98	25	257-41	312510	1995	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.986	8	8
98190048	98950	P.S.	21-Jun-98	26	256-15, 20	312557	1996	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.605	6	6
98190085	97836	P.S.	26-Jun-98	26	254-20, 256-20	312510	1995	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.986	7	7
98190109	97867	P.S.	3-Jul-98	27	256-20, 257-20,41	312429	1994	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.855		
98190047	98947	P.S./S.G.N.	19-Jun-98	25	254-10, 256-20, 257-20,41	635762	1994	WA	WDFW	H	SIMILKAMEEN HATCHERY	SIMILKAMEEN R 490325	1.044		
98190176	98481	P.S.	9-Jul-98	28	257-10, 20	635762	1994	WA	WDFW	H	SIMILKAMEEN HATCHERY	SIMILKAMEEN R 490325	1.044	1	0
98190207	98666	P.S.	17-Jul-98	29	253-31, 258-10	635762	1994	WA	WDFW	H	SIMILKAMEEN HATCHERY	SIMILKAMEEN R 490325	1.044	3	2
98190042	98938	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	044632	1995	AK	ADFG	W	(W) TAKU R 111-32	TAKU R 111-32	1.002	2	2
98190182	98489	P.S.	11-Jul-98	28	257-10,20, 258-80,90	471727	1995	AK	MIC	H	TAMGAS CREEK	TAMGAS CR	7.105		
98190039	98924	P.S./S.G.N.	18-Jun-98	25	251-20, 253-11,13,14,31	070927	1995	OR	ODFW	H	BONNEVILLE HATCHERY	TANNER CR	8.05	17	16
98190042	98933	P.S./S.G.N.	18-Jun-98	25	251-10,20, 254-10,40, 256-20	071154	1995	OR	ODFW	H	BONNEVILLE HATCHERY	TANNER CR	8.058	17	16
98190050	98960	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	091712	1995	OR	ODFW	H	BONNEVILLE HATCHERY	TANNER CR	61.21	151	150
98190034	98886	P.S./S.G.N.	16-Jun-98	25	251-20,30,40, 253-11,13,14,31, 254-10, 256-20	091711	1995	OR	CEDC	H	BONNEVILLE HATCHERY	TONGUE PT. LOWER COL	2.119	4	4
98190106	97862	P.S.	3-Jul-98	27	254-30,50	071118	1995	OR	ODFW	H	GARDINER CR (STEP)	UMPQUA R	1.01	1	1
98190109	97866	P.S.	3-Jul-98	27	256-20, 257-20,41	070752	1995	OR	ODFW	H	ROCK CREEK	UMPQUA R	1.05		
98190275	11156	P.S.	30-Jul-98	31	251-10,40, 252-31,35, 253-12,35, 259-37	070752	1995	OR	ODFW	H	ROCK CREEK	UMPQUA R	1.05		
98190215	98677	P.S.	22-Jul-98	30	253-31, 256-20,25,30	043829	1995	AK	ADFG	W	(W) UNUK R 101-75	UNUK R 101-75	1	2	2
98190008	98856	S.G.N.	11-Jun-98	24	254-10	635839	1994	WA	WDFW	H	DRYDEN POND	WENATCHEE R 45.0030	1.047	1	1
98190055	98993	P.S./S.G.N.	23-Jun-98	26	251-20, 253-11,13,14,35, 262-30	635839	1994	WA	WDFW	H	DRYDEN POND	WENATCHEE R 45.0030	1.047		
98190100	97857	P.S.	1-Jul-98	27	256-20,25, 259-38	635839	1994	WA	WDFW	H	DRYDEN POND	WENATCHEE R 45.0030	1.047	2	1
98190173	98475	P.S./S.G.N.	8-Jul-98	28	253-31,35	635839	1994	WA	WDFW	H	DRYDEN POND	WENATCHEE R 45.0030	1.047	2	1
98190050	98964	S.G.N.	22-Jun-98	26	251-20, 253-11,13,14,31	636002	1994	WA	COOP	H	WILLAPA ALLIANCE NP2	WILLAPA R 24.0251	9.531	24	23
98190046	98945	P.S.	19-Jun-98	25	256-20	1301031515	1995	AK	ADFG	W	(W) WILLOW CR 247-41	WILLOW CR 247-41	1.008		
98190033	98870	P.S.	16-Jun-98	25	256-20	0501011213	1995	WA	FWS	H	PROSSER HATCHERY	YAKIMA @ PROSSER HAT	9.415	20	19
98190035	98899	P.S.	16-Jun-98	25	251-20,41	0501011213	1995	WA	FWS	H	PROSSER HATCHERY	YAKIMA @ PROSSER HAT	9.415		

Appendix D.3. Summary of chinook coded wire tags randomly recovered from KMA commercial harvests sorted by release site, 1999.

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
99190106	100957	P.S.	2-Jul-99	27	251-20	044703	1995	AK	NSRA	H	MEDVEJIE	BEAR COVE 113-41	11.108	23	22
99190115	100907	P.S.	1-Jul-99	27	256-20,30, 254-30	040709	1995	AK	NSRA	H	MEDVEJIE	BEAR COVE 113-41	10.973	22	22
99190105	100974	P.S.	1-Jul-99	27	251-10,20, 256-20	092035	1996	OR	ODFW	H	YOUNGS BAY NET PENS	BLIND SLOUGH LOW COL	1.045	2	2
99190001	11163	S.G.N.	10-Jun-99	24	253-13,14,31	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	9	8
99190008	11173	P.S.	16-Jun-99	25	256-15, 255-20, 254-10	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	5	4
99190014	11180	P.S.	17-Jun-99	25	255-20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	5	4
99190010	11174	P.S.	16-Jun-99	25	53% 256-20, 28% 251-12,20, 20% 251-40	312431	1994	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.054	4	3
99190074	100929	P.S.	26-Jun-99	26	257-10,20,70	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	5	4
99190032	11208	S.G.N	23-Jun-99	26	253-31,35	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190054	11188	S.G.N.	22-Jun-99	26	254-10,20	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190060	11192	P.S.	24-Jun-99	26	255-20, 256-30	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190067	11241	P.S.	25-Jun-99	26	256-30, 255-10	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190072	100921	P.S.	23-Jun-99	26	251-10	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190072	100933	P.S.	23-Jun-99	26	251-10	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190075	100937	P.S.	26-Jun-99	26	91% 251-10, 9% 252-34	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783		
99190077	11242	P.S.	25-Jun-99	26	62% 255-10,20, 38% 262-75	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783		
99190085	100902	P.S.	28-Jun-99	27	254-40	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	6	5
99190095	11245	P.S./S.G.N.	28-Jun-99	27	72% 255-20,256-20,30, 15% 257-40,41, 13% 262-80,95	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783		
99190170	104548	P.S.	9-Jul-99	28	258-30,60	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	3	2
99190124	100912	S.G.N.	7-Jul-99	28	253-11, 245-40	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	8	7
99190127	100914	P.S./S.G.N.	8-Jul-99	28	95% 253-11,254-40,50,255-20,256-30; 5% 262-65	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783		
99190157	100988	S.G.N.	14-Jul-99	29	253-11, 254-40	312509	1995	AK	ADFG	H	ELMENDORF	BUSKIN R 259-21	2.783	16	15
99190066	11236	P.S.	23-Jun-99	26	256-30, 255-10,20, 259-39	092239	1996	OR	ODFW	H	MCKENZIE	CLACKAMAS R	1.067	2	2
99190106	100956	P.S.	2-Jul-99	27	251-20	092235	1996	OR	ODFW	H	MCKENZIE	CLACKAMAS R	1.152	2	2
99190075	100935	P.S.	26-Jun-99	26	91% 251-10, 9% 252-34	636328	1996	WA	WDFW	H	PRIEST RAPIDS HATCH.	COL.R PRIEST-WANAPUM	25.657		
99190121	100984	P.S.	8-Jul-99	28	255-20, 256-20,25,30	636328	1996	WA	WDFW	H	PRIEST RAPIDS HATCH.	COL.R PRIEST-WANAPUM	25.657	69	69
99190072	100927	P.S.	23-Jun-99	26	251-10	636323	1996	WA	WDFW	H	WELLS HATCHERY	COL.R ROCKY R-WELLS	1.038	2	2
99190043	11223	P.S.	20-Jun-99	26	253-31,35	233051	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ MCNARY DAM	1	2	1
99190005	11166	P.S./S.G.N.	15-Jun-99	25	253-13,14,31	233027	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ RM 141	1	2	1
99190158	100989	P.S.	14-Jul-99	29	254-10,50	233025	1995	WA	NMFS	M	(M) MIXED COLUMBIA	COL.R. @ RM 141	1	6	5
99190105	100969	P.S.	1-Jul-99	27	251-10,20, 256-20	634607	1995	WA	WDFW	H	TURTLE ROCK HATCHERY	COLUMBIA NEAR WELLS	1.044	2	2
99190105	100973	P.S.	1-Jul-99	27	251-10,20, 256-20	634607	1995	WA	WDFW	H	TURTLE ROCK HATCHERY	COLUMBIA NEAR WELLS	1.044	2	2
99190027	11198	P.S.	21-Jun-99	26	96% 256-10,15,20 and 255-20, 4% 251-41	634129	1995	WA	WDFW	H	WELLS HATCHERY	COLUMBIA R - GENERAL	1.048		
99190043	11226	P.S.	20-Jun-99	26	253-31,35	636001	1995	WA	WDFW	H	PRIEST RAPIDS HATCH.	COLUMBIA R AT PRIEST	25.853	53	52
99190008	11170	P.S.	16-Jun-99	25	256-15, 255-20, 254-10	044511	1994	AK	SJ	H	SHELDON JACKSON	CRESCENT BAY 113-41	5.963	11	10
99190127	100915	P.S./S.G.N.	8-Jul-99	28	95% 253-11,254-40,50,255-20,256-30; 5% 262-65	044814	1995	AK	SJ	H	SHELDON JACKSON	CRESCENT BAY 113-41	8.223		
99190071	11248	P.S.	24-Jun-99	26	256-20	312512	1995	AK	ADFG	H	ELMENDORF	CROOKED CR 244-30	4.804	10	9
99190027	11199	P.S.	21-Jun-99	26	96% 256-10,15,20 and 255-20, 4% 251-41	312512	1995	AK	ADFG	H	ELMENDORF	CROOKED CR 244-30	4.804		
99190012	11177	P.S.	16-Jun-99	25	262-95,80	312532	1997	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009	5	4
99190020	11181	S.G.N.	17-Jun-99	25	253-11,14	312604	1996	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.011	2	1
99190064	11229	P.S.	24-Jun-99	26	256-20	312532	1997	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009	2	1
99190064	11230	P.S.	24-Jun-99	26	256-20	312532	1997	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009	2	1
99190265	101000	P.S.	6-Aug-99	32	90% 262-80; 10% 256-20	312532	1997	AK	ADFG	H	FORT RICHARDSON	DECEPTION CR 247-41	1.009		
99190029	11205	P.S.	22-Jun-99	26	84% 256-15 and 255-20, 8% 257-20, 8% 251-40	1301030712	1995	AK	ADFG	W	(W) DESHKA R	DESHKA R 247-41	1.005		
99190075	100938	P.S.	26-Jun-99	26	91% 251-10, 9% 252-34	044532	1995	AK	ADFG	H	CRYSTAL LK/EARL WEST	EARL WEST COV 107-40	10.586		

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Appendix D.3. (page 2 of 5)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
99190106	100950	P.S.	2-Jul-99	27	251-20	070951	1995	OR	ODFW	H	ELK RIVER HATCHERY	ELK RIVER	1.843	4	3
99190070	100939	P.S.	23-Jun-99	26	258-10,30,60	312430	1994	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	1.024	4	4
99190243	104573	P.S./S.G.N.	31-Jul-99	31	257-10,70	312511	1995	AK	ADFG	H	ELMENDORF	HALIBUT CV LAG241-15	2.484	5	5
99190040	11215	P.S.	17-Jun-99	25	262-75,95	044755	1995	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	9.307	45	44
99190043	11224	P.S.	20-Jun-99	26	253-31,35	044758	1995	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	8.37	17	17
99190105	100966	P.S.	1-Jul-99	27	251-10,20, 256-20	044862	1996	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	9.293	19	18
99190128	100975	S.G.N.	7-Jul-99	28	253-11,14,31	044758	1995	AK	SSRA	H	WHITMAN LAKE	HERRING COVE 101-45	8.37	23	22
99190033	11210	P.S.	23-Jun-99	26	253-11, 256-30	044711	1995	AK	NSRA	H	HIDDEN FALLS	KASNYKU BAY 112-11	10.561	22	21
99190128	100977	S.G.N.	7-Jul-99	28	253-11,14,31	044711	1995	AK	NSRA	H	HIDDEN FALLS	KASNYKU BAY 112-11	10.561	29	28
99190072	100931	P.S.	23-Jun-99	26	251-10	636107	1996	WA	WDFW	H	KLICKITAT HATCHERY	KLICKITAT R 30.0002	22.228	45	45
99190265	104570	P.S.	6-Aug-99	32	90% 262-80; 10% 256-20	054535	1997	WA	WDFW	H	KLICKITAT HATCHERY	KLICKITAT R 30.0002	1.003		
99190065	11234	P.S.	25-Jun-99	26	256-20,25,30	032246	1995	AK	NMFS	H	LITTLE PORT WALTER	L PORT WALTER 109-10	1.007	2	1
99190103	11250	S.G.N.	1-Jul-99	27	253-11,13,14,31	036218	1994	AK	NMFS	H	LITTLE PORT WALTER	L PORT WALTER 109-10	1.061	2	2
99190138	100920	P.S./S.G.N.	9-Jul-99	28	254-10,20,30,40,50	032309	1995	AK	NMFS	H	LITTLE PORT WALTER	L PORT WALTER 109-10	1	3	2
99190179	100994	P.S./S.G.N.	16-Jul-99	29	253-11,14, 256-20	036229	1995	AK	NMFS	H	LITTLE PORT WALTER	L PORT WALTER 109-10	1.01	6	5
99190175	104542	P.S./S.G.N.	15-Jul-99	29	73%251-10,253-31,259-39, 27%258-10	036229	1995	AK	NMFS	H	LITTLE PORT WALTER	L PORT WALTER 109-10	1.01		
99190116	100906	P.S./S.G.N.	1-Jul-99	27	253-11,14	312659	1996	AK	ADFG	H	ELMENDORF	LOWELL CR 231-30	2.522	5	5
99190041	11222	P.S.	17-Jun-99	25	251-10,20, 253-35	071258	1995	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	4.963	9	8
99190072	100923	P.S.	23-Jun-99	26	251-10	071317	1995	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	8.551	17	17
99190072	100928	P.S.	23-Jun-99	26	251-10	092248	1996	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	1.017	2	1
99190075	100936	P.S.	26-Jun-99	26	91% 251-10, 9% 252-34	092249	1996	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	1.081		
99190109	100960	P.S.	1-Jul-99	27	256-15,20,25,30	092160	1996	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	1.071	2	2
99190265	100999	P.S.	6-Aug-99	32	90% 262-80; 10% 256-20	092253	1996	OR	ODFW	H	MCKENZIE	MCKENZIE R-1	1.136		
99190008	11171	P.S.	16-Jun-99	25	256-15, 255-20, 254-10	312515	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014	2	1
99190064	11228	P.S.	24-Jun-99	26	256-20	312515	1995	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.014	2	1
99190101	100905	S.G.N.	30-Jun-99	27	254-10,20	312608	1996	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.008	2	1
99190109	100961	P.S.	1-Jul-99	27	256-15,20,25,30	312435	1994	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.01	2	1
99190179	100995	P.S./S.G.N.	16-Jul-99	29	253-11,14, 256-20	312608	1996	AK	ADFG	H	FORT RICHARDSON	NINILCHIK R 244-20	1.008	6	5
99190066	11235	P.S.	23-Jun-99	26	256-30, 255-10,20, 259-39	215512	1996	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	1.044	2	2
99190072	100932	P.S.	23-Jun-99	26	251-10	215513	1996	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	7.669	16	15
99190105	100962	P.S.	1-Jul-99	27	251-10,20, 256-20	215512	1996	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	1.044	2	2
99190106	100955	P.S.	2-Jul-99	27	251-20	215513	1996	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	7.669	16	15
99190121	100981	P.S.	8-Jul-99	28	255-20, 256-20,25,30	213041	1995	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	12.313	33	33
99190214	112617	P.S.	28-Jul-99	31	258-10,20; 259-41; 252-30	215512	1996	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	1.044		
99190249	100997	P.S./S.G.N.	5-Aug-99	32	254-10,20,50	212920	1994	WA	QDNR	H	QUINAULT LAKE HATCH.	QUINAULT LAKE (21)	11.069	32	31
99190072	100930	P.S.	23-Jun-99	26	251-10	182530	1996	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	14.399	29	29
99190264	112623	P.S.	30-Jul-99	31	258-30	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168	14	14
99190266	104574	P.S.	7-Aug-99	32	262-75	183147	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO R UPPER	11.168	25	24
99190195	104562	P.S.	23-Jul-99	30	23%262-45, 77%251-10,20,253-31,33	183148	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-ATNARKO SPAWN CHAN	11.343		
99190065	11232	P.S.	25-Jun-99	26	256-20,25,30	182318	1995	BC	CDFO	H	H-FORT BABINE CDP	R-BABINE RIVER	1	2	1
99190200	104558	P.S.	23-Jul-99	30	259-25	183356	1996	BC	CDFO	H	H-FORT BABINE CDP	R-BABINE RIVER	1.524		
99190105	100968	P.S.	1-Jul-99	27	251-10,20, 256-20	181514	1995	BC	CDFO	H	H-PEMBERTON F&G PIP	R-BIRKENHEAD RIVER	1.01	2	1
99190266	104575	P.S.	7-Aug-99	32	262-75	181514	1995	BC	CDFO	H	H-PEMBERTON F&G PIP	R-BIRKENHEAD RIVER	1.01	2	2
99190008	11172	P.S.	16-Jun-99	25	256-15, 255-20, 254-10	181656	1995	BC	CDFO	H	H-TOBOGGAN CR CDP	R-BULKLEY R UPPER	1	2	1
99190123	100986	P.S.	7-Jul-99	28	258-30	183209	1996	BC	CDFO	H	H-TOBOGGAN CR CDP	R-BULKLEY R UPPER	1.005	1	0

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Appendix D.3. (page 3 of 5)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
99190133	100979	P.S.	8-Jul-99	28	258-10	183208	1996	BC	CDFO	H	H-TOBOGGAN CR CDP	R-BULKLEY R UPPER	1.005	1	0
99190148	104537	P.S.	13-Jul-99	29	258-10	183210	1996	BC	CDFO	H	H-TOBOGGAN CR CDP	R-BULKLEY R UPPER	1	2	1
99190106	100947	P.S.	2-Jul-99	27	251-20	182834	1996	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.256	3	2
99190106	100948	P.S.	2-Jul-99	27	251-20	182834	1996	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.256	3	2
99190106	100949	P.S.	2-Jul-99	27	251-20	182834	1996	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.256	3	2
99190161	100991	S.G.N.	15-Jul-99	29	253-11, 254-40	182146	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-CHUCKWALLA RIVER	1.036	6	5
99190169	104545	P.S.	9-Jul-99	28	258-30,60,80	182045	1996	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	23.417	23	23
99190126	100913	S.G.N.	7-Jul-99	28	254-10	182046	1996	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	35.664	97	96
99190196	104553	P.S.	23-Jul-99	30	262-75,80	182046	1996	BC	CDFO	H	H-CONUMA RIVER	R-CONUMA ESTUARY	35.664	219	218
99190068	11244	P.S.	27-Jun-99	27	74% 256-20,30, 13% 257-20,41, 12% 262-80,95	181330	1996	BC	CDFO	H	H-GOLDSTREAM R PIP	R-ESQUIMALT HRBR	3.925		
99190095	11246	P.S./S.G.N.	28-Jun-99	27	72% 255-20,256-20,30, 15% 257-40,41, 13% 262-80,95	0501020406	1996	WA	WDFW	H	RINGOLD SPRINGS HATC	RINGOLD POND (TROUT)	3.439		
99190001	11164	S.G.N.	10-Jun-99	24	253-13,14,31	181318	1994	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.066	3	3
99190011	11176	P.S.	16-Jun-99	25	256-20, 253-31	182855	1996	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.005	2	1
99190105	100971	P.S.	1-Jul-99	27	251-10,20, 256-20	182855	1996	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.005	2	1
99190127	100918	P.S./S.G.N.	8-Jul-99	28	95% 253-11,254-40,50,255-20,256-30; 5% 262-65	182250	1995	BC	CDFO	H	H-SHOTBOLT BAY	R-KILBELLA BAY	1.272		
99190265	104569	P.S.	6-Aug-99	32	90% 262-80; 10% 256-20	183906	1997	BC	CDFO	H	H-KITIMAT RIVER	R-KILDALA RIVER	3.557		
99190013	11178	P.S.	17-Jun-99	25	256-15, 253-13,31, 259-39	180641	1994	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.017	2	1
99190014	11179	P.S.	17-Jun-99	25	255-20	180640	1994	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.017	2	1
99190041	11221	P.S.	17-Jun-99	25	251-10,20, 253-35	182751	1996	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.02	2	1
99190198	104567	P.S.	23-Jul-99	30	66%258-30,259-42, 34%256-10,30	182753	1996	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.02		
99190214	112616	P.S.	28-Jul-99	31	258-10,20; 259-41; 252-30	182754	1996	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.02		
99190214	112618	P.S.	28-Jul-99	31	258-10,20; 259-41; 252-30	182755	1996	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1		
99190267	104577	P.S.	5-Aug-99	32	81% 251-40; 10% 251-30; 9% 252-10	182341	1995	BC	CDFO	H	H-TERRACE CDP	R-KITSUMKALUM R	1.021		
99190091	100903	P.S.	29-Jun-99	27	254-40	180634	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-NAHMINT RIVER	7.382	15	14
99190040	11218	P.S.	17-Jun-99	25	262-75,95	181859	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	48.571	232	232
99190105	100963	P.S.	1-Jul-99	27	251-10,20, 256-20	181903	1996	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	76.432	155	155
99190123	100985	P.S.	7-Jul-99	28	258-30	181903	1996	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	76.432	76	76
99190151	104536	P.S.	14-Jul-99	29	258-10	182714	1997	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	111.458	196	195
99190243	104571	P.S./S.G.N.	31-Jul-99	31	257-10,70	181348	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	32.686	68	68
99190262	104576	P.S.	5-Aug-99	32	262-75	181347	1995	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT LAKE	29.73	66	65
99190174	104547	P.S.	15-Jul-99	29	258-30	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	87	87
99190176	100993	P.S.	16-Jul-99	29	254-50	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739	282	281
99190195	104564	P.S.	23-Jul-99	30	23%262-45, 77%251-10,20,253-31,33	181832	1994	BC	CDFO	H	H-NITINAT RIVER	R-NITINAT RIVER	49.739		
99190072	100922	P.S.	23-Jun-99	26	251-10	182232	1996	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.001	2	1
99190072	100924	P.S	23-Jun-99	26	251-10	182233	1996	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.001	2	1
99190194	104549	P.S.	23-Jul-99	30	253-35	182221	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.021	8	7
99190264	112622	P.S.	30-Jul-99	31	258-30	182225	1994	BC	CDFO	H	H-ROBERTSON CREEK	R-ROBERTSON CREEK	1.013	1	1
99190124	100910	S.G.N.	7-Jul-99	28	253-11, 245-40	182152	1995	BC	CDFO	H	H-SNOOTLI CREEK	R-SALLOOMT RIVER	1	3	2
99190267	104578	P.S.	5-Aug-99	32	81% 251-40; 10% 251-30; 9% 252-10	182735	1996	BC	CDFO	H	H-SNOOTLI CREEK	R-SALLOOMT RIVER	1.485		
99190127	100916	P.S./S.G.N.	8-Jul-99	28	95% 253-11,254-40,50,255-20,256-30; 5% 262-65	182048	1996	BC	CDFO	H	H-NITINAT RIVER	R-SARITA R	1.06		
99190263	100998	P.S./S.G.N.	6-Aug-99	32	63%256-20,253-31,33, 30%257-20,41, 6%262-95	184216	1997	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R LOWER	8.804		
99190033	11209	P.S.	23-Jun-99	26	253-11, 256-30	182501	1996	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	3.521	7	7
99190121	100983	P.S.	8-Jul-99	28	255-20, 256-20,25,30	182501	1996	BC	CDFO	H	H-SHUSWAP RIVER	R-SHUSWAP R. MIDDLE	3.521	10	9
99190072	100934	P.S.	23-Jun-99	26	251-10	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	1
99190091	100904	P.S.	29-Jun-99	27	254-40	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	2	1

-Continued-

Appendix D.3. (page 4 of 5)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Rearing Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
99190096	100940	P.S.	30-Jun-99	27	256-20,30, 255-20	183355	1996	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1.716	3	3
99190106	100946	P.S.	2-Jul-99	27	251-20	183355	1996	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1.716	3	3
99190106	100953	P.S.	2-Jul-99	27	251-20	183355	1996	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1.716	3	3
99190124	100911	S.G.N.	7-Jul-99	28	253-11, 245-40	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	3	2
99190165	104539	P.S.	16-Jul-99	29	256-20	182251	1995	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1	6	5
99190196	104552	P.S.	23-Jul-99	30	262-75,80	183355	1996	BC	CDFO	H	H-TOFINO PIP	R-TRANQUILLE EST	1.716	11	10
99190067	11240	P.S.	25-Jun-99	26	256-30, 255-10	182832	1996	BC	CDFO	H	H-MASS.G.N. CDP	R-YAKOUN RIVER	6.245	13	12
99190152	100990	P.S.	14-Jul-99	29	92%262-65,75, 8%255-20	183814	1997	BC	CDFO	H	H-MASS.G.N. CDP	R-YAKOUN RIVER	3.294		
99190078	11194	P.S.	25-Jun-99	26	256-20	212961	1996	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.361	3	2
99190118	100978	P.S.	6-Jul-99	28	253-11, 254-50, 255-10,20, 256-20,30	212961	1996	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.361	4	3
99190159	104538	P.S.	15-Jul-99	29	258-40	212961	1996	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.361	2	2
99190197	104556	P.S.	23-Jul-99	30	82%262-75,80,95, 15%253-11,256-30, 3%258-10	212425	1994	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.062		
99190198	104568	P.S.	23-Jul-99	30	66%258-30,259-42, 34%256-10,30	213003	1997	WA	QDNR	H	SALMON R FISH CULTUR	SALMON R 21.0139	1.728		
99190072	100926	P.S.	23-Jun-99	26	251-10	092149	1996	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.051	2	2
99190200	104559	P.S.	23-Jul-99	30	259-25	092447	1997	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.142		
99190251	100996	P.S.	4-Aug-99	32	256-20	092447	1997	OR	ODFW	H	SALMON RIVER	SALMON R/OR - COAST	1.142	3	3
99190011	11175	P.S.	16-Jun-99	25	256-20, 253-31	092319	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.265	2	2
99190041	11217	P.S.	17-Jun-99	25	251-10,20, 253-35	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190041	11220	P.S.	17-Jun-99	25	251-10,20, 253-35	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190078	11193	P.S.	25-Jun-99	26	256-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190093	11247	P.S.	30-Jun-99	27	255-10,20, 256-20,30	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190096	100941	P.S.	30-Jun-99	27	256-20,30, 255-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190096	100943	P.S.	30-Jun-99	27	256-20,30, 255-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190106	100945	P.S.	2-Jul-99	27	251-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190106	100951	P.S.	2-Jul-99	27	251-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190106	100952	P.S.	2-Jul-99	27	251-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190106	100959	P.S.	2-Jul-99	27	251-20	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	2	1
99190122	11249	P.S.	7-Jul-99	28	258-10	092319	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.265	1	1
99190123	100987	P.S.	7-Jul-99	28	258-30	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	1	0
99190175	104540	P.S./S.G.N.	15-Jul-99	29	73%251-10,253-31,259-39, 27%258-10	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019		
99190196	104550	P.S.	23-Jul-99	30	262-75,80	092319	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.265	8	7
99190196	104554	P.S.	23-Jul-99	30	262-75,80	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019	6	6
99190195	104563	P.S.	23-Jul-99	30	23%262-45, 77%251-10,20,253-31,33	092320	1996	OR	ODFW	H	MARION FORKS	SANTIAM R & N FK-1	1.019		
99190031	11207	P.S.	22-Jun-99	26	256-15,20, 255-20	071257	1995	OR	ODFW	H	WILLAMETTE HATCHERY	SANTIAM R, S FK	13.981	28	28
99190041	11219	P.S.	17-Jun-99	25	251-10,20, 253-35	312631	1997	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	1.731	3	3
99190046	11212	P.S.	23-Jun-99	26	258-80	312510	1995	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.986	12	12
99190065	11233	P.S.	25-Jun-99	26	256-20,25,30	312557	1996	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.605	5	5
99190193	104544	P.S	23-Jul-99	30	253-12,14,31, 254-50, 256-30	312510	1995	AK	ADFG	H	ELMENDORF	SELDOVIA HBR 241-11	2.986	23	23
99190029	11206	P.S.	22-Jun-99	26	84% 256-15 and 255-20, 8% 257-20, 8% 251-40	312508	1995	AK	ADFG	H	ELMENDORF	SHIP CR 247-50	5.771		
99190083	100901	S.G.N.	28-Jun-99	27	254-10	635534	1995	WA	WDFW	H	SIMILKAMEEN HATCHERY	SIMILKAMEEN R 490325	1.029	2	2
99190151	104535	P.S.	14-Jul-99	29	258-10	635534	1995	WA	WDFW	H	SIMILKAMEEN HATCHERY	SIMILKAMEEN R 490325	1.029	2	1
99190133	100980	P.S.	8-Jul-99	28	258-10	044636	1996	AK	ADFG	W	(W) TAKU R 111-32	TAKU R 111-32	1.007	1	0
99190267	104579	P.S.	5-Aug-99	32	81% 251-40; 10% 251-30; 9% 252-10	044635	1995	AK	ADFG	W	(W) TAKU R 111-32	TAKU R 111-32	1.002		
99190043	11227	P.S.	20-Jun-99	26	253-31,35	471711	1994	AK	MIC	H	TAMGAS CREEK	TAMGAS CR	3.542	7	7
99190125	100909	S.G.N.	7-Jul-99	28	253-11,14	471728	1996	AK	MIC	H	TAMGAS CREEK	TAMGAS CR	3.929	11	10

-Continued-

Appendix D.3. (page 5 of 5)

Sample	Head	Gear	Date	Week	District(s)	Tag Code	Brood Year	State	Agency	Rearing Code	Location	Site	Tag Ratio	Harvest	SE
99190127	100919	P.S./S.G.N.	8-Jul-99	28	95% 253-11,254-40,50,255-20,256-30; 5% 262-65	471727	1995	AK	MIC	H	TAMGAS CREEK	TAMGAS CR	7.105		
99190066	11237	P.S.	23-Jun-99	26	256-30, 255-10,20, 259-39	092218	1996	OR	ODFW	H	YOUNGS BAY NET PENS	TONGUE PT. LOWER COL	2.747	6	5
99190072	100925	P.S.	23-Jun-99	26	251-10	092218	1996	OR	ODFW	H	YOUNGS BAY NET PENS	TONGUE PT. LOWER COL	2.747	6	5
99190078	11195	P.S.	25-Jun-99	26	256-20	092218	1996	OR	ODFW	H	YOUNGS BAY NET PENS	TONGUE PT. LOWER COL	2.747	6	5
99190078	11196	P.S.	25-Jun-99	26	256-20	092219	1996	OR	ODFW	H	YOUNGS BAY NET PENS	TONGUE PT. LOWER COL	2.852	6	5
99190105	100967	P.S.	1-Jul-99	27	251-10,20, 256-20	091717	1995	OR	ODFW	H	WILLAMETTE HATCHERY	TONGUE PT. LOWER COL	2.952	6	5
99190180	100992	P.S.	16-Jul-99	29	254-10, 255-20, 256-20	092218	1996	OR	ODFW	H	YOUNGS BAY NET PENS	TONGUE PT. LOWER COL	2.747	16	15
99190195	104561	P.S.	23-Jul-99	30	23%262-45, 77%251-10,20,253-31,33	092219	1996	OR	ODFW	H	YOUNGS BAY NET PENS	TONGUE PT. LOWER COL	2.852		
99190001	11165	S.G.N.	10-Jun-99	24	253-13,14,31	043829	1995	AK	ADFG	W	(W) UNUK R 101-75	UNUK R 101-75	1	3	3
99190061	11190	P.S.	24-Jun-99	26	254-10,20	043559	1994	AK	ADFG	W	(W) UNUK R 101-75	UNUK R 101-75	1.026	2	2
99190105	100970	P.S.	1-Jul-99	27	251-10,20, 256-20	071255	1995	OR	ODFW	H	DEXTER PONDS	WILLAMETTE R, MD FK2	7.189	15	14
99190106	100958	P.S.	2-Jul-99	27	251-20	071255	1995	OR	ODFW	H	DEXTER PONDS	WILLAMETTE R, MD FK2	7.189	15	14
99190218	112619	P.S.	30-Jul-99	31	258-40	092514	1997	OR	ODFW	H	DEXTER PONDS	WILLAMETTE R, MID FK	1.043	1	1
99190043	11225	P.S.	20-Jun-99	26	253-31,35	092159	1996	OR	ODFW	H	WILLAMETTE HATCHERY	WILLAMETTE R-1	1.168	2	2
99190105	100965	P.S.	1-Jul-99	27	251-10,20, 256-20	092159	1996	OR	ODFW	H	WILLAMETTE HATCHERY	WILLAMETTE R-1	1.168	2	2
99190127	100917	P.S./S.G.N.	8-Jul-99	28	95% 253-11,254-40,50,255-20,256-30; 5% 262-65	092159	1996	OR	ODFW	H	WILLAMETTE HATCHERY	WILLAMETTE R-1	1.168		
99190121	100982	P.S.	8-Jul-99	28	255-20, 256-20,25,30	092233	1996	OR	ODFW	H	MCKENZIE	WILLAMETTE R-2	1.162	3	3
99190198	104566	P.S.	23-Jul-99	30	66%258-30,259-42, 34%256-10,30	092232	1996	OR	ODFW	H	MCKENZIE	WILLAMETTE R-2	1.139		
99190198	104565	P.S.	23-Jul-99	30	66%258-30,259-42, 34%256-10,30	091856	1997	OR	ODFW	H	YAQUINA BAY SALMON R	YAQUINA R	3.978		
99190226	112621	P.S.	30-Jul-99	31	258-10,20; 259-42	091856	1997	OR	ODFW	H	YAQUINA BAY SALMON R	YAQUINA R	3.978	5	5

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