

Special Publication No. 04-15

Southeast Alaska Chinook Salmon Harvests, Harvest Limits, and Annual Deviations from Pacific Salmon Treaty Allocations, 1985 through 2002

by

Dave M. Gaudet,

Scott A. McPherson,

John K. Carlile,

Brian L. Lynch,

Audra L. J. Brase,

Paul M. Suchanek,

Doug M. Eggers,

and

Karen K. Crandall

November 2004

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)		General		Measures (fisheries)	
centimeter	cm	Alaska Administrative		fork length	FL
deciliter	dL	Code	AAC	mid-eye-to-fork	MEF
gram	g	all commonly accepted		mid-eye-to-tail-fork	METF
hectare	ha	abbreviations	e.g., Mr., Mrs., AM, PM, etc.	standard length	SL
kilogram	kg			total length	TL
kilometer	km	all commonly accepted			
liter	L	professional titles	e.g., Dr., Ph.D., R.N., etc.	Mathematics, statistics	
meter	m			<i>all standard mathematical</i>	
milliliter	mL	at	@	<i>signs, symbols and</i>	
millimeter	mm	compass directions:		<i>abbreviations</i>	
		east	E	alternate hypothesis	H _A
		north	N	base of natural logarithm	<i>e</i>
		south	S	catch per unit effort	CPUE
		west	W	coefficient of variation	CV
		copyright	©	common test statistics	(F, t, χ^2 , etc.)
		corporate suffixes:		confidence interval	CI
		Company	Co.	correlation coefficient	
		Corporation	Corp.	(multiple)	R
		Incorporated	Inc.	correlation coefficient	
		Limited	Ltd.	(simple)	r
		District of Columbia	D.C.	covariance	cov
		et alii (and others)	et al.	degree (angular)	°
		et cetera (and so forth)	etc.	degrees of freedom	df
		exempli gratia		expected value	<i>E</i>
		(for example)	e.g.	greater than	>
		Federal Information		greater than or equal to	≥
		Code	FIC	harvest per unit effort	HPUE
		id est (that is)	i.e.	less than	<
		latitude or longitude	lat. or long.	less than or equal to	≤
		monetary symbols		logarithm (natural)	ln
		(U.S.)	\$, ¢	logarithm (base 10)	log
		months (tables and		logarithm (specify base)	log ₂ , etc.
		figures): first three		minute (angular)	'
		letters	Jan,...,Dec	not significant	NS
		registered trademark	®	null hypothesis	H ₀
		trademark	™	percent	%
		United States		probability	P
		(adjective)	U.S.	probability of a type I error	
		United States of		(rejection of the null	
		America (noun)	USA	hypothesis when true)	α
		U.S.C.	United States	probability of a type II error	
			Code	(acceptance of the null	
		U.S. state	use two-letter	hypothesis when false)	β
			abbreviations	second (angular)	"
			(e.g., AK, WA)	standard deviation	SD
				standard error	SE
				variance	
				population	Var
				sample	var
Weights and measures (English)					
cubic feet per second	ft ³ /s				
foot	ft				
gallon	gal				
inch	in				
mile	mi				
nautical mile	nmi				
ounce	oz				
pound	lb				
quart	qt				
yard	yd				
Time and temperature					
day	d				
degrees Celsius	°C				
degrees Fahrenheit	°F				
degrees kelvin	K				
hour	h				
minute	min				
second	s				
Physics and chemistry					
all atomic symbols					
alternating current	AC				
ampere	A				
calorie	cal				
direct current	DC				
hertz	Hz				
horsepower	hp				
hydrogen ion activity	pH				
(negative log of)					
parts per million	ppm				
parts per thousand	ppt, ‰				
volts	V				
watts	W				

SPECIAL PUBLICATION NO. 04-15

**SOUTHEAST ALASKA CHINOOK SALMON HARVESTS, HARVEST
LIMITS, AND ANNUAL DEVIATIONS FROM PACIFIC SALMON
TREATY ALLOCATIONS, 1985 THROUGH 2002**

by

Dave M. Gaudet (retired)
Commissioner's Office, Juneau

Scott A. McPherson,
Division of Sport Fish, Douglas

John K. Carlile
Division of Commercial Fisheries, Douglas

Brian L. Lynch
Division of Commercial Fisheries, Petersburg

Audra L. J. Brase
Division of Sport Fish, Fairbanks

Paul M. Suchanek (retired)
Division of Sport Fish, Douglas

Doug M. Eggers
Division of Commercial Fisheries, Juneau
and

Karen K. Crandall (retired)
Division of Sport Fish, Douglas

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1599

November 2004

Development and publication of this manuscript were partially financed by the Federal Aid in Sport Fish Restoration Act (16 U.S.C. 777-777K) and Federal funding associated with implementation of the Pacific Salmon Treaty.

The Division of Sport Fish Special Publications series was established in 1991 for the publication of techniques and procedures manuals, informational pamphlets, special subject reports to decision-making bodies, symposia and workshop proceedings, application software documentation, in-house lectures, and other documents that do not fit in another publication series of the Division of Sport Fish. Since 2004, the Division of Commercial Fisheries has also used the same Special Publication series. Special Publications are intended for fishery and other technical professionals. Special Publications are available through the Alaska State Library and on the Internet: <http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm>. This publication has undergone editorial and peer review.

*Dave M. Gaudet (retired),
Alaska Department of Fish and Game, Commissioner's Office
PO Box 25526 Juneau, AK 99802-5526, USA*

*Scott A. McPherson,
Alaska Department of Fish and Game, Division of Sport Fish
P.O. Box 240020, Douglas, AK 99824-0020 USA*

*John K. Carlile,
Alaska Department of Fish and Game, Division of Commercial Fisheries
P.O. Box 240020, Douglas, AK 99824-0020 USA*

*Brian L. Lynch,
Alaska Department of Fish and Game, Division of Commercial Fisheries
P.O. Box 667, Petersburg, AK 99833-0667, USA*

*Audra L.J Brase,
Alaska Department of Fish and Game, Division of Sport Fish
1300 College Road, Fairbanks, AK 99701-1599, USA*

*Paul M. Suchanek (retired),
Alaska Department of Fish and Game, Division of Sport Fish
P. O. Box 240020, Douglas, AK 99824-0020 USA*

*Doug M. Eggers,
Alaska Department of Fish and Game, Commissioner's Office
P.O. Box 25526, Juneau AK 99802-5526*

*and
Karen K. Crandall (retired),
Alaska Department of Fish and Game, Division of Sport Fish*

This document should be cited as:

Gaudet, D.M., S A. McPherson, J.K. Carlile, B.L. Lynch, A.L.J. Brase, P.M. Suchanek, D.M. Eggers, and K.K. Crandall. 2004. Southeast Alaska Chinook salmon harvests, harvest limits, and annual deviations from Pacific Salmon Treaty allocations, 1985 through 2002. Alaska Department of Fish and Game, Special Publication No. 04-15, Anchorage.

The Alaska Department of Fish and Game administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility, or if you desire further information please write to ADF&G, P.O. Box 25526, Juneau, AK 99802-5526; U.S. Fish and Wildlife Service, 4040 N. Fairfax Drive, Suite 300 Webb, Arlington, VA 22203 or O.E.O., U.S. Department of the Interior, Washington DC 20240.

For information on alternative formats for this and other department publications, please contact the department ADA Coordinator at (voice) 907-465-4120, (TDD) 907-465-3646, or (FAX) 907-465-2440.

TABLE OF CONTENTS

	Page
LIST OF TABLES.....	ii
LIST OF FIGURES	ii
LIST OF APPENDICES	iii
INTRODUCTION.....	1
BACKGROUND.....	1
TREATY HARVEST CALCULATIONS.....	5
Risk Factor.....	5
Allocation of Pre-Treaty Hatchery Base Harvest	6
HARVESTS, QUOTAS, AND ALLOCATIONS	6
DISCUSSION.....	7
LITERATURE CITED.....	9
TABLES AND FIGURES.....	11
APPENDIX A: SOURCES OF ERROR IN THE ESTIMATION OF THE NUMBER OF ALASKA HATCHERY PRODUCED CHINOOK SALMON IN SOUTHEAST ALASKA FISHERIES	23
APPENDIX B: TOTAL HARVESTS, ALASKA HATCHERY CONTRIBUTIONS, TREATY HARVESTS AND TERMINAL EXCLUSIONS OF CHINOOK SALMON IN SOUTHEAST ALASKA, 1985-2002.....	27
APPENDIX C. HISTORY OF THE MANAGEMENT OF THE SPORT FISHERY SINCE 1985	53
APPENDIX D. MAJOR REGULATORY ACTIONS TAKEN IN THE MANAGEMENT OF THE SOUTHEAST ALASKA TROLL FISHERY FOR CHINOOK SALMON OVER THE PAST 80 YEARS	61

LIST OF TABLES

Table	Page
1. Harvests of Chinook salmon in Southeast Alaska fisheries by gear, with total harvests of Chinook salmon from Alaskan hatcheries, from 1975-2002.....	12
2. All-gear harvests of Chinook salmon in Southeast Alaska; Alaska hatchery add-ons and terminal exclusions; and PST Treaty harvests, quotas and deviations, from 1985-2002.....	13
3. Final Postseason harvests, allocations and deviations from allocations of PST Treaty Chinook salmon caught in Southeast Alaska fisheries, 1985 to 2002.	14
4. PST Treaty harvests of Chinook salmon in Southeast Alaska fisheries by gear type, 1985 to 2002, with percentages of seine of total and percentage breakdown between troll and sport of the remainder.	15
5. Risk Factor estimates (1985-2002) and allocation of Pre-Treaty Alaska hatchery Chinook salmon (1985-2002) by gear type.	16
6. Total Chinook salmon harvest (Total) and Alaska hatchery harvest (AK Hatchery) by gear, 1985-2002. ^a	17
7. Southeast Alaska troll Chinook salmon harvest per fleet day during the general summer fishery, 1985-2002. ^a	18
8. Southeast Alaska all-gear Chinook salmon quota at levels of the Chinook salmon abundance index from the 1999 Agreement.....	19

LIST OF FIGURES

Figure	Page
1. Statistical fishing districts in Southeast Alaska.	20
2. Total Chinook salmon harvest (including Alaska hatchery) by gear type from 1985–2002.	21

LIST OF APPENDICES

Appendix	Page
A1. Sources of error in the estimation of the number of Alaska-hatchery produced Chinook salmon in Southeast Alaska fisheries.....	24
B1. Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1979.....	28
B2. Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1980.....	29
B3. Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1981.....	30
B4. Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1982.....	31
B5. Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1983.....	32
B6. Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1984.....	33
B7. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1985.....	34
B8. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1986.....	35
B9. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1987.....	36
B10. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1988.....	37
B11. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1989.....	38
B12. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1990.....	39
B13. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1991.....	40
B14. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1992.....	41
B15. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1993.....	42
B16. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1994.....	43
B17. Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1995.....	44
B18. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1996.....	45
B19. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1997.....	46
B20. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1998.....	47
B21. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1999.....	48
B22. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 2000.....	49
B23. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 2001.....	50
B24. Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 2002.....	51
C1. History of the management of the sport fishery since 1985.....	54
D1. Major regulatory actions taken in the management of the Southeast Alaska troll fishery for Chinook salmon over the past 80 years.....	62

INTRODUCTION

Since 1985, Alaska has managed the Southeast Alaska (SEAK) Chinook fishery under the terms of the Pacific Salmon Treaty (PST). The PST requires that the all-gear harvest of Chinook salmon designated as Treaty fish does not exceed a set PST Quota each year. In addition to the Treaty salmon, the PST allows for the unlimited harvest of Alaska hatchery produced Chinook salmon (add-on). Originally, only the commercial troll fishery was managed to ensure that the quota was not exceeded. Beginning in 1987, allocations were set for individual gear types.

This report describes the history of these allocations and the harvest (Chinook caught and kept) by gear type of Treaty and add-on fish since 1985. All data are considered final at this time, though harvest statistics, coded wire tag recovery and other sampling data may change the results slightly in the future.

BACKGROUND

Harvest of Chinook salmon in Southeast Alaska occurs in troll, sport and net fisheries (Table 1). Through 1975, Chinook salmon were targeted in the troll and sport fisheries; and in the District 111, 108, and 106 drift gillnet fisheries targeted spring runs of Chinook salmon bound for the rivers terminating in these districts (Figure 1). Chinook salmon are caught incidental to other species of salmon targeted in the purse seine and gillnet fisheries that occur later in the season. Prior to 1976, other than seasons, scheduled weekly closures, and terminal area closures, there was little direct management to limit or restrict the harvest of Chinook salmon in Southeast Alaska fisheries. In 1976, in response to weak Chinook salmon runs to the Taku River, the troll fisheries in Districts 112, 111, and 115 were restricted or closed during the spring run. In 1976 portions of District 111 in the vicinity of Taku Inlet, were closed to sport fishing during the spring. The District 111 and 106 drift gillnet fisheries were not opened until the third week in June. In 1978, in response to weak runs of Chinook salmon to the Stikine River, the District 106, 108, and 110 troll fisheries were restricted or closed during the spring run and the District 108 drift gillnet fishery was closed until the third week in June.

Quota management for Southeast Alaska Chinook salmon fisheries began in 1980 when the North Pacific Fishery Management Council (NPFMC) imposed guideline harvest levels (GHLs), primarily for the conservation of the Columbia upriver bright stock. There were GHLs from 1980 through 1984. Although GHLs applied to all commercial fisheries, only the commercial troll fishery was actively managed to ensure compliance. The spring drift gillnet fisheries targeting Chinook salmon had already been regulated through time closures beginning in 1976. The purse seine fishery was not considered a large harvester of Chinook salmon. At the time, there was little growth in the sport fishery; with approximately 20,000 Chinook salmon harvested per year.

In 1985, the United States and Canada signed the original Pacific Salmon Treaty, which included provisions for management and conservation of Chinook salmon from 1985-1994. The Treaty Chinook salmon stocks primarily include those that migrate north and are caught in the fisheries of both countries. Implicit in the agreement is a sharing arrangement for Chinook salmon stocks that migrate from the waters off of Washington and Oregon and are caught in Southeast Alaska fisheries (the Baldrige Stipulation). As a part of the initial sharing arrangements for the Chinook salmon fishery in Southeast Alaska and in major Chinook salmon fisheries in Canada, harvest ceilings were established. Ceiling (or quota) fisheries (Table 2) were intended to be

managed to ensure that the ceiling number would be met annually. In order to ensure that these ceilings were attained as closely as possible, and not exceeded on an annual basis, a management range was established in 1987. The range was 7.5% of the ceiling. Excess harvests or shortfalls within the cumulative range could be added to or subtracted from the next year's harvest. Cumulative deviations greater than the 7.5% management range had to be made up in the next year. Deviations less than the 7.5% management range could not be made up.

Where Chinook salmon were concerned, the goal of the PST was to rebuild depressed wild stocks. Parties to the PST recognized that there was little incentive for Alaska to produce hatchery Chinook salmon if there was no subsequent increase in the harvest level related to that production. Thus, the hatchery add-on concept was developed. The add-on is the estimated number of Alaska hatchery produced Chinook salmon harvested, minus: 1) 5,000 for pre-treaty harvests of Alaskan hatchery Chinook salmon, and 2) a risk factor. The risk factor is the standard error of the estimate of the total number of Alaska hatchery Chinook salmon harvested multiplied by a factor (1.645). The risk factor is determined to ensure that there is a 5% or less chance that the estimated add-on minus the pre-treaty hatchery harvest is greater than the true hatchery harvest. The number of Treaty fish is the total harvest minus the add-on.

In response to record Chinook salmon harvests by the net fisheries in 1984 and 1985, the Alaska Board of Fisheries (Board or BOF) took action in 1987 and limited the total net fishery harvest of treaty Chinook salmon to 20,000 fish. The division among gear groups was: purse seine - 11,400 fish, drift gillnet - 7,600 fish, and set gillnet - 1,000 fish. In 1997 the purse seine allocation was changed to 4.3% of the preseason total Treaty target (quota) (Tables 2 and 3), while the drift and set gillnet allocations remained the same. In addition, a size limit was imposed on the purse seine fishery that prohibited the sale of Chinook salmon measuring 21 to 28 inches.

For two consecutive years, 1990 and 1991, the Southeast Alaska Chinook salmon harvests exceeded the Pacific Salmon Commission (PSC) ceiling (Table 2). The overages were due primarily to preseason underestimates of the projected sport fishery harvests and to record harvest rates for the troll fishery. Calculation of the annual SEAK sport fish harvest is performed through a post season mailout survey (Statewide Harvest Survey (SWHS), e.g. Jennings et al. 2004). In the fall of 1991 it was apparent that the 1990 sport fishery harvest of 41,360 Treaty fish was about 16,000 fish above the preseason projected harvest of 25,000 fish. The 1990 troll fishery harvested a record 263,500 Treaty fish. The net result was that Alaska was about 38,000 fish above the cumulative ceiling, using harvest and sampling statistics current at that time.

At the 1992 SEAK BOF meeting, in response to the overages of 1990 and 1991, the Alaska Trollers Association (ATA) petitioned the BOF to develop an allocation plan which would include both the sport and commercial fisheries. In addition, regulations for cumulative harvests by gear group were established. By regulation, when computing harvest sharing, the Alaska Department of Fish and Game (department) shall: take into consideration that the PSC's annual harvest ceiling includes the first 5,000 Alaska hatchery produced fish; calculate overage and underages in harvests for each gear group on an annual basis; manage each gear group so that the gear group stays within 7.5% of its harvest share; and apply separately for each gear group any risk adjustment factor imposed by the PSC for computing Alaska hatchery contribution. The allocation for the total number of treaty fish was set at 20,000 fish for the combined net fisheries, with the remainder split 83% for the commercial troll fishery and 17% for the sport fishery (Table 3). In 1994 the Board again revised the sport and troll fishery allocations. The sport

portion increased 1% for each of the next 3 years (1994-1996). Therefore, beginning in 1996, 20% of the sport and commercial troll fishery allocation was to sport fisheries (Table 3).

At the 1992 meeting the Board further stated that in order to make up the PST overages from 1990 and 1991, the sport fishery had to reduce their allocation by an additional 1,700 fish in 1992 and that the troll fishery would make up the remainder. In 1992, the troll fishery was managed to reduce their allocation by 28,000 Chinook salmon. The sport fishery was managed inseason according to guidelines provided in the regulatory *Southeast Alaska King Salmon Management Plan* (5 AAC 47.055).

In 1996, a Letter of Agreement (LOA) was signed between the U.S. Section members, party to the PST, resulting in abundance-based management of the SEAK Chinook salmon fishery. Quotas were based on a preseason abundance index as well as inseason adjustments to this index. Prior to this time, quotas were negotiated based on other factors.

One provision of the 1996 LOA was that Alaska was allowed to exclude wild Chinook salmon caught in the Yakutat area set gillnet and sport fisheries from being counted towards the Southeast Alaska Chinook salmon treaty harvest total. However, this exclusion of wild fish also stipulated a base harvest of 2,200 Chinook salmon. The value of 2,200 Chinook salmon was the average annual number of Chinook salmon that were caught in the Yakutat area in the pre-treaty base period of 1979-1982. The 2,200 Chinook salmon were allocated into 2,000 fish for set gillnet fisheries and 200 fish for sport fisheries; this was close to the harvest from each of these gear groups in the 1979-1982 base period. Therefore, after 1996, all Chinook salmon caught in Yakutat set gillnet fisheries in excess of 2,000 were excluded from the treaty harvest total as were all Chinook salmon caught in Yakutat (mainly the Situk River) sport fisheries in excess of 200, so long as the escapement goal range of 500 to 1,000 large Chinook spawners was met or exceeded (Table 2). The LOA also indicated that methods for computing terminal exclusions for the Taku and Stikine Rivers would also be developed, with the expectation that they would be implemented at some later date.

In 1997, the BOF again revised the sport fishery management plan for Chinook salmon in Southeast Alaska. Although the initial 20% allocation to the sport fishery was not changed, the fishery was now managed to attain a harvest target. Harvest targets were calculated annually using the preseason abundance index and projecting treaty harvests with either a 1-, 2-, or 3-fish daily bag limit for the sport fishery. The harvest target (and bag limit regulation) that was projected to be closest to the initial 20% allocation was selected. Subsequently, the fishery was managed to obtain the harvest target and the harvest target was not changed inseason regardless of the final quota for SEAK.

In 1999, the parties of the Pacific Salmon Treaty negotiated a new agreement (The Agreement) which is currently in effect. The Agreement includes a Chinook salmon annex which implements bilateral abundance-based management and defines Aggregate Abundance Based Management (AABM) fisheries. The SEAK commercial and sport Chinook salmon fisheries are defined as AABM fisheries and are now managed to achieve a harvest that varies annually, based on the overall abundance of Chinook salmon, rather than on a fixed annual ceiling. Abundance, hence harvest, is based on preseason forecasts, or inseason estimates, or both. A combination of both has been used to set the allowable harvest. In addition The Agreement in Annex IV, Chapter 3 states that: "... beginning in 1999, provisions for overage and underage shall be developed by the Chinook Technical Committee (CTC) as follows: (a) in AABM fisheries: (i) the first post-

season CTC model calibration will be used to compute the abundance index; (ii) a cumulative (across years), management range of 7.5 percent (subject to review by the CTC) shall be permitted; ...” The Appendix to Annex IV, Chapter 3 further states that: “*The CTC will adapt the previous overage/underage annex provisions to reflect changes based on: (a) catch established through in-season or pre-season abundance indicators; ... The CTC will review a 7.5 percent management range above and below the management objective and consider whether increased flexibility in the management range is desirable or necessary, taking into consideration management precision, increased risk on affected stock groups and consistency with the objectives in paragraph 1 of this Chapter.*” Due to the implementation of the AABM regimes, the Agreement has introduced additional complications to assessing overages and underages relative to a management target. Now accountability is to be assessed against the first postseason CTC model calibration rather than against a preseason harvest target. Due to inherent forecasting error in the AABM preseason abundance indices and the associated harvest target level, fishery managers do not know the final harvest that they will be held accountable to when management decisions must be made (the first postseason Abundance Index (AI) is not known until the following April (CTC 2002)). The uncertainty in the forecast error becomes confounded with the management imprecision that the Overage/Underage policy was originally intended to allow for. The number of fish involved in the 7.5% management range will vary on a year-to-year basis depending on the abundance index and allowable harvest. If an agency managed to within the 7.5% error but the first postseason abundance index, calculated the following spring, dropped, that agency may then have exceeded the range around the harvest target associated with the first postseason AI. At the time of this report the CTC had not yet reviewed or made recommendations regarding the 7.5% management range. In addition, until a feasible assessment of overage and underage can be developed, the PSC will no longer assess Treaty compliance based on the first postseason calibration but will take corrective action on a case-by-case basis if violations occur.

Another provision of The Agreement was the implementation of terminal exclusions for the Taku and Stikine Rivers for the years 1999 and beyond and retroactively for 1996 to 1998. The wild Chinook salmon terminal exclusions were applied to gillnet and sport fisheries near the mouths of these rivers. The 1979-1982 average Chinook salmon harvest was computed for each of the Taku and Stikine gillnet and sport fisheries to use as a base. The base period harvest for the Taku drift gillnet fishery was 1,708 Chinook salmon, the base period harvest for the Taku sport fishery (spring run near Juneau) was 1,857 fish, the base period harvest for the Stikine drift gillnet fishery was 402 Chinook salmon and the base period harvest for the Stikine sport fishery (spring run near Petersburg and Wrangell) was 2,302 fish. The Taku drift gillnet exclusion only applies to Chinook salmon caught prior to statistical week 29 in District 111. The Stikine drift gillnet exclusion only applies to Chinook salmon caught prior to statistical week 30 in District 108. Beginning in 2000, all Chinook salmon caught in the Taku or Stikine terminal exclusion fisheries in excess of the base can be excluded from the treaty harvest provided that the Chinook salmon escapement goal is reached for that river in the year in which the exclusion is to be taken (Table 2).

At the 2000 SEAK BOF meeting, regulations for sport fishing regimes and cumulative harvests were again modified. Under the revised regulations, a range of bag limits and methods and means were directly triggered by the preseason Chinook salmon abundance indices developed by the PSC CTC. To provide stability to the sport charter industry, no changes in the regulations would be made inseason, regardless of any inseason changes in the abundance indices. The 7.5%

management range overage and underage provisions for individual gear groups were eliminated and subsequent harvests above the sport fishery allocation came out of the troll quota and are to be paid back in future years, when the abundance is higher, and vice versa.

During its 2003 meeting, the BOF changed the SEAK King Salmon Management Plan by removing the linkage of the sport fishery harvest to the troll fishery quota (2000 King Salmon Management Plan 5 AAC 47.055(j)). Effective in the 2003 season, the harvest performance was based on total cumulative harvest within gear type. Each gear group was managed to attain its individual quota independent of the others.

Management actions necessary to reduce large all-gear Treaty overages will be determined on an ad hoc basis if that situation should occur, by the PSC. The 1999-2002 cumulative all-gear harvest deviation from the cumulative Treaty quota is -55,469 fish (Table 2).

This summary is meant to provide an overview of the complex history of management of the Chinook salmon fisheries in Southeast Alaska since 1975. Annual management plans, available from ADF&G, Commercial Fisheries Division, Douglas, for the troll fishery should be consulted for further details about the management of that fishery. A more detailed history of the management of the sport fishery is given in Appendix C. An overview of major troll management actions in the past is detailed in Appendix D.

TREATY HARVEST CALCULATIONS

Calculation of harvests of treaty Chinook salmon by gear group is complex. This complexity is primarily due to calculations required to estimate the hatchery add-on. Calculations include estimating the harvest of Alaska hatchery Chinook salmon for each group and then subtracting a risk factor and pre-treaty base hatchery harvest. Primary sources for error in the estimation of Alaska hatchery contributions are discussed in Appendix A. The total harvests, Alaska hatchery contribution, terminal exclusions, and Treaty harvests for each gear group, 1985 to 2002, are detailed in Appendix B. An overview of the risk factor and pre-treaty base harvest calculation details follows.

RISK FACTOR

When the add-on was being negotiated, other PSC members wanted to ensure that Alaska made a conservative final estimate of the number of Alaska hatchery Chinook salmon that were caught in SEAK fisheries. Since there was uncertainty in the estimate, the participants decided the final estimate would be the total Alaska hatchery contribution estimate minus some "risk factor" which would depend upon the uncertainty (measurement error due to sampling and analysis) associated with the total Alaska hatchery contribution estimate and upon the amount of risk that Alaska was allowed to take. From 1985 to 1995 the amount of risk Alaska was required to assume for the add-on was 1 in 20, i.e., one-half of a 95% confidence interval about the estimate or the standard error times 1.96. In other words, Alaska was required to set the final estimate of the Alaska hatchery Chinook salmon harvest low enough so that the true number of Alaska hatchery Chinook salmon caught would be at least as large as this number 95% of the time. Looking at this another way, the true number of Alaska hatchery Chinook salmon caught would only be lower than this estimate 5% of the time. In 1996 the risk was changed from 1 in 20 to 1 in 10 (i.e., a 90% lower confidence bound). Therefore, Alaska is now allowed to assume a greater risk (be less conservative) in generating the final estimate for the Alaska hatchery

Chinook salmon harvest. Confidence bounds on estimates of Alaska hatchery Chinook salmon are based on methods described by Clark and Bernard (1987) and Bernard and Clark (1996).

The risk factor is lowest for the set gillnet fishery, which harvests very few Alaska hatchery fish, and highest for the sport fishery. Because a smaller percentage of the harvest is sampled in the sport fishery, and the sport harvest is estimated post-season from the SWHS, the sport fishery estimates of the Alaska hatchery contribution are less precise relative to the commercial fisheries (see Table 5, Panel A, for the relative estimates of the risk factor by gear). The highest risk factor for all gear-types combined, was in 1995. This was one of the highest harvests of Alaska hatchery Chinook salmon and it had a 1 in 20 chance of error. The 1996 risk factor would have been larger if there had been a 1 in 20 chance of error as opposed to the 1 in 10 chance of error implemented that year. Another factor was that the harvest from the Hidden Falls area was designated a terminal fishery as per the LOA. There is no variance in the estimate if a fishery is designated as terminal. Because of the large number of fish sampled in the troll fishery, the risk factor is relatively low.

ALLOCATION OF PRE-TREATY HATCHERY BASE HARVEST

A total of 5,000 Alaska hatchery Chinook salmon were assumed to be part of the yearly harvest prior to the signing of the PST. Hence 5,000 fish are subtracted during the add-on calculation. In 1992, the BOF directed the department to calculate the risk factor and proportion out the 5,000 pre-Treaty hatchery base fish by gear group (Table 5, Panel B). The Board specified no means for this calculation. However, in practice the pre-Treaty hatchery base harvest is allocated among gear groups so that relative magnitude of the risk factor plus pre-Treaty hatchery harvest allocation is equal to the relative magnitude of the total hatchery fish harvested by each gear group.

HARVESTS, QUOTAS, AND ALLOCATIONS

This section summarizes harvests, quotas (harvest limits) and allocations by gear of Chinook salmon harvested in Southeast Alaska. Some of the numbers in this section reflect the best estimates using harvest and sampling statistics current during the time period being discussed, and may not reflect the final numbers that are presented in the tables and appendices in this report.

From 1985 to 1994, annual harvests of all Chinook salmon (including Alaska hatchery) remained relatively stable in the 260,000 to 300,000 fish range, except in 1990 and 1991 when the harvests exceeded 350,000 fish (Table 1). Harvests then dropped to lows in 1995 and 1996 at about 236,000 fish. Since 1985, the commercial troll fleet has taken the highest numbers of Chinook salmon (73% of total), followed by the sport (17%), purse seine (5%), drift gillnet (4%) and set gillnet (1%) fleets (Table 6). Since 1985, the sport fish portion of the annual harvest has gradually increased while the troll portion has declined slightly and the net gear portion has remained relatively stable (Figure 2).

Since 1985 harvests of Alaska hatchery produced Chinook salmon were lowest in 1985 and continued to climb to highs in 1996 and 2000-2002 (Tables 1 and 6). Since 1985, the commercial troll fishery has accounted for nearly half of the harvest of Alaska hatchery Chinook salmon (46%), followed by sport (27%), drift gillnet (14%) and purse seine (14%) (Table 6).

Harvest ceilings (quotas or allocations) for SEAK and the individual gear types (troll, net and sport) by year are shown in Table 3. There was no ceiling in 1995 and in 1996-1997 ranges were specified. In 1995, troll and net fisheries were barred from harvesting Chinook salmon by an injunction in Seattle Federal Court after August 3. In 1996, the LOA specified an all gear harvest of 140,000-155,000 fish. In 1997, the LOA specified an all gear harvest of 277,000-302,000 fish. Ceilings of 147,500 and 289,500 for 1996 and 1997, respectively, are used in Tables 2 and 3, which are the midpoint of the ranges for both years.

Since 1987, the net fisheries have been below their annual allocation 12 times, with the average deviation being -4,229 fish (Table 3). Since 1992, the sport fishery has been under its allocation 6 times. The average 1992-2002 sport fishery deviation was +752. The 2002 sport fishery deviation of -23,964 fish occurred because the sport fishery was managed to reduce its cumulative 1999-2001 overage of 27,169 fish. The troll fishery has been under its allocation 5 times during the 1992-2002 period. The average troll deviation for this period was -2,665 fish. The estimated troll fishery treaty harvest exceeded the preseason 2002 allocation by 32,340 fish (it exceeded its final allocation by 20,260 fish). The 2002 troll fishery overage occurred because the troll fishery was allowed to harvest the estimated remainder of the sport and net allocations. The troll fishery harvested the projected net fishery underage to ensure that the entire 2002 preseason quota of 356,500 fish would be harvested. Since the implementation of the 1999 PST Agreement, the SEAK all-gear harvests have resulted in a cumulative (1999-2002) deviation of -55,469 fish. The cumulative (1999-2002) deviation in the net fisheries was -25,716 fish, in the troll fishery -32,958 fish, and +3,205 fish in the sport fishery. These harvest deviations are based on the first postseason AIs for 1999-2002, set by the CTC and PSC, the last of which is calibration #0308 at 1.82 for the 2002 fishing season, that equates to an all-gear quota of 371,933 fish. The 2002 first postseason allowable harvest is 15,433 fish greater than the preseason allowable harvest. Harvests by individual gear by year are listed in Appendix B.

DISCUSSION

The SEAK Chinook salmon fishery has been managed under ceilings for Treaty fish since 1985. In 1985 and 1986, only the troll fishery was actively managed to ensure that the ceiling was not exceeded. Beginning in 1987, the net fisheries were given an allocation and were actively managed to achieve it. Starting in 1992, the remaining quota (after the net allocations were subtracted) was split between the troll and sport fisheries. Since 1992 (except 1995 when there was no defined ceiling) all fisheries have been managed to achieve these allocations. Average and cumulative deviations from allocations (Tables 2 and 3) were calculated excluding 1995.

Prior to the 1999 PST agreement and the 2000 changes to the BOF SEAK King Salmon Management Plan the cumulative (1992-1998) deviation from the all-gear quota was estimated at the time to be -1,314 fish, including years when there were no defined ceilings. According to the sport King Salmon Management Plan modified in 2000, the troll fishery harvest quota is to be adjusted to ensure that the PSC harvest ceiling is attained. At the beginning of the 2001 summer troll Chinook salmon fishery, the department agreed to a reduction of 3,600 fish from the troll allocation in order to reduce the 1999-2000 cumulative deviation (estimated at the time to be 21,600 fish) to within 10% of the cumulative allowable harvest. Ten percent was used to take into account model error in addition to the 7.5% management range specified in the Agreement and to reduce the overage by some amount, pending CTC review of the appropriateness of the 7.5% management range. However, due to an unexpected increase in the Chinook salmon

harvest rate late in the second troll Chinook salmon retention period, the troll harvest was reduced by only 1,000 fish. In addition to the higher than anticipated troll harvest, preliminary sport fish harvest data indicated that the 2001 sport fishery allocation was exceeded by 12,570 fish. As a result, the 1999-2001 estimated all-gear overage increased to 23,900 fish. Although a sport fishery overage of 10,000 fish in the 2001 harvest was known prior to the second troll Chinook salmon retention period, the department did not attempt to eliminate the overage and continued with the plan to reduce the troll allocation by 3,600 fish. No further reductions in the troll allocation were made because: (1) the 3,600 fish troll allocation reduction had been previously announced in the 2001 summer troll management plan (Lynch and Skannes 2001), (2) the inseason abundance index adjustment to 1.10 (all-gear quota of 178,500) resulted in a troll quota reduction of 8,200 fish, and (3) because there was uncertainty as to which gear group(s) allocation will ultimately be reduced to eliminate the 1999 overage that occurred prior to implementation of the 2000 SEAK King Salmon Management Plan.

The first 2001 postseason calibration increased the abundance index (AI) to 1.29, which corresponds to an all-gear quota of 250,259 fish, from the preseason quota of 189,900 fish (AI = 1.14). As a result of this increase, the estimated 23,900 fish 1999-2001 cumulative overage assumed at the end of the 2001 season then became an all-gear deviation (underage) of -40,669 Chinook salmon. Net and troll gears cumulative deviations for 1999-2001 were -14,620 and -53,218 Chinook salmon, and the sport fishery showed a deviation of 27,169 Chinook salmon (Table 3).

The preseason abundance index for the 2002 season was set by the CTC and PSC at 1.74 for an all-gear quota of 356,500 Chinook salmon. During the 2002 season the SEAK Chinook salmon sport fishery was restricted to a 2-fish/day bag limit for resident anglers and 1-fish/day, 3-fish/year bag and possession limits for non-resident anglers. The restrictions were designed to reduce the cumulative sport fishery overage and any remainder of the 20% sport fishery quota would be added to the troll fishery quota. Based on the preseason abundance index, the 2002 sport fishery 20% quota was 66,500 Chinook salmon and the preliminary estimate of the 2002 sport fishery Treaty harvest was 58,400 fish. The 8,100 Chinook salmon remainder on the sport fishery harvest was harvested by the troll fishery and reduced the estimated 1999-2001 cumulative sport fishery overage to 19,100 Chinook salmon.

The first postseason abundance index for the 2002 season was set by the CTC at 1.82 (calibration #0308). This AI equates to an all-gear quota of 371,933 fish with a troll quota of 277,872 fish, a sport fishery quota of 69,468, a seine quota of 15,993 fish and respective quotas of 7,600 and 1,000 fish for the drift and set gillnet fisheries. The current estimated 1999-2002 cumulative all-gear deviation from the cumulative allowable harvest is -55,469 fish, an underage. The troll fishery deviation is -32,958, the sport fishery deviation is 3,205 and the combined net deviation is -25,716.

LITERATURE CITED

- Bernard, D.R., and J.E. Clark. 1996. Estimating salmon harvest with coded-wire tags. *Canadian J. Fisheries and Aquatic Sciences* 53: 2323-2332.
- Clark, J.E., and D.R. Bernard. 1987. A compound multivariate binomial-hypergeometric describing coded microwire tag recovery from commercial salmon catches in Southeastern Alaska. *Alaska Dept. Fish Game Inf. Leaflet*. No. 131.
- CTC (Chinook Technical Committee). 2002. Annual exploitation rate analysis and model calibration. Pacific Salmon Commission, Report TCCHINOOK (02)-3, Vancouver, British Columbia, Canada.
- Jennings, G. B., K. Sundet, A. E. Bingham, and D. Sigurdsson. 2004. Participation, catch, and harvest in Alaska sport fisheries during 2001. Alaska Department of Fish and Game, Fishery Data Series No. 04-11, Anchorage.
- Lynch, B. and P. Skannes, 2001. Management Plan and regulatory guide for Chinook and coho salmon in the Southeast Alaska/Yakutat summer troll fishery, 2001. Regional Information Report No. IJ01-22. Alaska Department of Fish and Game, Division of Commercial Fisheries, Southeast Region, Juneau.

TABLES AND FIGURES

Table 1.—Harvests of Chinook salmon in Southeast Alaska fisheries by gear, with total harvests of Chinook salmon from Alaskan hatcheries, from 1975-2002.

Year	Troll	Net	Sport	Total	Alaska hatchery ^{a, b}	All other stocks ^c
1975	287,342	13,365	17,000	317,707	0	317,707
1976	231,239	10,523	17,000	258,762	0	258,762
1977	271,735	13,443	17,000	302,178	0	302,178
1978	375,919	25,492	17,000	418,411	0	418,411
1979	337,672	28,388	16,581	382,641	518	382,123
1980	303,643	20,114	20,213	343,970	6,248	337,722
1981	248,782	18,952	21,300	289,034	2,000	287,034
1982	241,938	46,992	25,756	314,686	1,033	313,653
1983	269,821	19,516	22,321	311,658	2,580	309,078
1984	235,622	32,405	22,050	290,077	5,638	284,439
1985	215,811	33,870	24,858	274,539	12,563	261,976
1986	237,703	22,099	22,551	282,353	17,375	264,978
1987	242,562	15,532	24,324	282,418	23,544	258,875
1988	231,364	21,788	26,160	279,312	29,409	249,903
1989	235,716	24,245	31,071	291,032	28,685	262,347
1990	287,939	27,712	51,218	366,869	53,646	313,223
1991	264,106	34,864	60,492	359,462	70,055	289,407
1992	183,759	32,140	42,892	258,791	43,934	214,857
1993	226,866	27,991	49,246	304,103	39,677	264,426
1994	186,331	35,654	42,365	264,350	36,442	227,908
1995	138,117	47,955	49,667	235,739	68,520	167,219
1996	141,452	37,298	57,509	236,259	80,079	156,180
1997	246,409	25,069	71,524	343,002	53,471	289,531
1998	192,066	23,514	55,013	270,593	31,286	239,307
1999	146,219	32,720	72,081	251,020	54,948	196,072
2000	158,717	41,400	63,173	263,290	82,176	181,114
2001	153,280	40,163	72,291	265,734	85,405	180,329
2002	325,308	31,689	69,537	426,534	76,742	349,792
Averages						
1975-1984	280,371	22,919	19,622	322,912	1,802	321,111
1985-2002	211,874	30,872	49,221	291,967	49,331	242,636

^a Harvests of Alaska hatchery fish assumed to be zero for 1975-1978.

^b Alaska hatchery includes hatchery add-on, Alaska hatchery base, and risk factor.

^c Includes harvests of wild SEAK stocks, plus wild and hatchery stocks that originate outside of Southeast Alaska.

Table 2.—All-gear harvests of Chinook salmon in Southeast Alaska; Alaska hatchery add-ons and terminal exclusions; and PST Treaty harvests, quotas and deviations, from 1985-2002.

Year	Total all-gear harvest	Alaska hatchery add-on	Wild-stock terminal exclusions	Treaty harvest ^a	Treaty target	Deviations From target	Alaska hatchery base + risk factor
1985	274,539	6,246	0	268,293	263,000	5,293	6,317
1986	282,353	11,091	0	271,262	263,000	8,262	6,284
1987	282,418	17,095	0	265,323	263,000	2,323	6,449
1988	279,312	22,525	0	256,787	263,000	-6,213	6,884
1989	291,032	21,510	0	269,522	263,000	6,522	7,175
1990	366,869	45,873	0	320,996	302,000	18,996	7,772
1991	359,462	61,476	0	297,986	273,000	24,986	8,579
1992 ^b	258,791	36,811	0	221,980	227,400	-5,420	7,123
1993	304,103	32,910	0	271,193	263,000	8,193	6,766
1994	264,350	29,185	0	235,165	240,000	-4,835	7,258
1995 ^c	235,739	58,800	0	176,939	176,939 ^c	0	9,720
1996 ^d	236,259	72,599	8,663	154,997	147,500	7,497	7,480
1997 ^d	343,002	46,463	9,843	286,696	289,500	-2,804	7,008
1998	270,593	25,021	2,420	243,152	260,000	-16,848	6,265
1999 ^e	251,020	47,725	4,453	198,842	184,164	14,678	7,223
2000 ^e	263,290	74,316	2,481	186,493	178,500	7,993	7,860
2001 ^e	265,734	77,287	1,528	186,919	250,259	-63,340	8,118
2002 ^e	426,534	68,164	1,237	357,133	371,933	-14,800	8,578
Averages							
1985-2002 ^f	291,967	41,950	1,701	248,315	248,844	-529	7,381
1985-1994	296,323	28,472	0	267,851	262,040	5,811	7,061
1995-1998 ^f	271,398	50,721	5,232	215,446	218,485	-3,039	7,618
1999-2002	301,645	66,873	2,425	232,347	246,214	-13,867	7,945
Totals							
1985-2002 ^f	5,255,400	755,099	30,626	4,469,675	4,479,195	-9,519	132,858
1985-1994	2,963,229	284,723	0	2,678,506	2,620,400	58,106	70,607
1995-1998 ^f	1,085,593	202,883	20,926	861,783	873,939	-12,155	30,473
1999-2002	1,206,578	267,492	9,699	929,387	984,856	-55,469	31,778

^a The Treaty harvest includes the first 5,000 Alaska hatchery produced fish (Alaska hatchery base) plus the risk factor number.

^b In 1992, the 1987-1991 accumulated PSC overage was estimated to be 45,600 fish. The BOF instructed ADF&G to reduce the overage to 10,000 fish, the Treaty target was therefore reduced to 227,400 (263,000 – 35,600; from 1992 troll management plan).

^c In 1995 there were no ceilings in effect. Troll and net fisheries were barred from harvesting Chinook salmon after Aug. 3 by injunction in Seattle Federal Court. For calculation purposes on this table, the 1995 quota was set to equal the Treaty Harvest (176,939).

^d In 1996 and 1997, harvest ranges were implemented as per the U.S. LOA, ranges of 140,000-155,000 in 1996 and 277,000-302,000 in 1997; the midpoint of each range was used as the Treaty targets.

^e 1999-2002 Treaty quotas are from the first postseason calibrations of the CTC Chinook salmon model run in the year following the fishery.

^f In these calculations, a treaty quota of 176,939, equal to the Treaty Harvest, was used for 1995.

Table 3.—Final Postseason harvests, allocations and deviations from allocations of PST Treaty Chinook salmon caught in Southeast Alaska fisheries, 1985 to 2002.

Year	Treaty harvests			Total Treaty Harvest	Allocations			Total Treaty Quota	Deviations from Allocations			Total Deviation From Quota
	Troll	Net	Sport		Troll	Net	Sport		Troll	Net	Sport	
1985	211,933	33,329	23,032	268,293				263,000				5,293
1986	231,649	20,564	19,049	271,262				263,000				8,262
1987 ^a	231,051	13,979	20,294	265,323	218,000	20,000		263,000	13,051	-6,021		2,323
1988 ^a	217,088	17,448	22,251	256,787	218,000	20,000		263,000	-912	-2,552		-6,213
1989 ^a	224,182	18,549	26,791	269,522	218,000	20,000		263,000	6,182	-1,451		6,522
1990 ^a	263,528	16,108	41,360	320,996	257,000	20,000		302,000	6,528	-3,892		18,996
1991 ^a	231,803	21,039	45,144	297,986	228,000	20,000		273,000	3,803	1,039		24,986
1992 ^b	162,617	24,017	35,346	221,980	167,790	20,000	39,610	227,400	-5,173	4,017	-4,264	-5,420
1993	212,350	16,166	42,677	271,193	201,690	20,000	41,310	263,000	10,660	-3,834	1,367	8,193
1994	177,146	22,552	35,467	235,165	180,400	20,000	39,600	240,000	-3,254	2,552	-4,133	-4,835
1995 ^c	115,072	26,371	35,496	176,939	---	---	---	---	---	---	---	---
1996 ^d	107,581	8,441	38,975	154,997	102,000	20,000	25,500	147,500	5,581	-11,559	13,475	7,497
1997 ^{de}	221,944	11,447	53,305	286,696	214,761	21,049	53,690	289,500	7,183	-9,602	-385	-2,804
1998 ^e	183,489	13,360	46,303	243,152	192,176	19,780	48,044	260,000	-8,687	-6,420	-1,741	-16,848
1999 ^{ef}	132,741	12,943	53,158	198,842	134,116	16,519	33,529	184,164	-1,375	-3,576	19,629	14,678
2000 ^f	133,963	11,091	41,439	186,493	129,780	16,276	32,445	178,500	4,183	-5,185	8,994	7,993
2001 ^f	128,692	13,502	44,725	186,919	184,718	19,361	46,180	250,259	-56,026	-5,859	-1,454	-63,340
2002 ^f	298,132	13,497	45,504	357,133	277,872	24,593	69,468	371,933	20,260	-11,096	-23,964	-14,800
Averages												
1992-2002	170,339	15,762	42,945	229,046								
1999-2001	131,799	12,512	46,441	190,751	149,538	17,385	37,384	204,308	-17,739	-4,873	9,056	-13,556
1999-2002	173,382	12,758	46,207	232,347	181,621	19,187	45,405	246,214	-8,239	-6,429	801	-13,867
Totals												
1992-2002	1,873,727	173,386	472,395	2,519,507								
1999-2001	395,396	37,536	139,322	572,254	448,614	52,156	112,153	612,923	-53,218	-14,620	27,169	-40,669
1999-2002	693,528	51,033	184,826	929,387	726,486	76,749	181,621	984,856	-32,958	-25,716	3,205	-55,469

^a There were no sport fish allocations from 1987 to 1991, from the BOF. The annual sport fish Chinook salmon allocation was assumed to be 25,000 fish.

^b In 1992, the 1987-1991 accumulated PSC overage was estimated to be 45,600 fish. The BOF instructed ADF&G to reduce the overage to 10,000 fish. The Treaty target was therefore reduced to 227,400 (263,000 – 35,600; from 1992 troll management plan).

^c In 1995 there were no ceilings in effect, troll and net fisheries were barred from harvesting Chinook salmon after Aug.3 by injunction in Seattle Federal Court.

^d In 1996 and 1997, harvest ranges were used as per the U.S. LOA. Ranges were 140,000-155,000 in 1996 and 277,000-302,000 in 1997; the midpoints were used as targets here.

^e Management plans for the 1997-1999 seasons directed ADF&G to estimate the harvest that would be attained under 1-, 2-, and 3-fish daily bag limits and then implement the bag limit which came closest to obtaining a 20% sport fish allocation. In 1997 the harvest target was 53,800, in 1998 it was 41,700, and in 1999 it was 42,800. The table shows the actual 80/20 troll/sport split.

^f 1999-2002 Treaty quotas are from the first postseason calibrations of the CTC Chinook salmon model run in the year following the fishery.

Table 4.—PST Treaty harvests of Chinook salmon in Southeast Alaska fisheries by gear type, 1985 to 2002, with percentages of seine of total and percentage breakdown between troll and sport of the remainder.

PST Treaty harvests by gear type											
Year	Troll	Sport	Seine	Trap	Drift gillnet	Set gillnet	Total Treaty harvest	Seine % of total	Troll + sport total	Troll % of troll + sport total	Sport % of troll + sport total
1985	211,933	23,032	21,521	366	10,210	1,232	268,293	8.0%	234,965	90.2%	9.8%
1986	231,649	19,049	11,572	0	7,564	1,428	271,262	4.3%	250,698	92.4%	7.6%
1987	231,051	20,294	4,369	0	7,540	2,069	265,323	1.6%	251,344	91.9%	8.1%
1988	217,088	22,251	10,856	94	5,604	894	256,787	4.2%	239,339	90.7%	9.3%
1989	224,182	26,791	11,004	290	6,457	798	269,522	4.1%	250,973	89.3%	10.7%
1990	263,528	41,360	8,872	39	6,537	661	320,996	2.8%	304,887	86.4%	13.6%
1991	231,803	45,144	11,406	46	7,873	1,713	297,986	3.8%	276,946	83.7%	16.3%
1992 ^a	162,617	35,346	17,181	25	4,795	2,017	221,980	7.7%	197,962	82.1%	17.9%
1993	212,350	42,677	6,759	36	8,060	1,311	271,193	2.5%	255,027	83.3%	16.7%
1994	177,146	35,467	12,257	0	6,399	3,895	235,165	5.2%	212,614	83.3%	16.7%
1995	115,072	35,496	10,435	0	6,563	9,374	176,939	5.9%	150,568	76.4%	23.6%
1996 ^b	107,581	38,975	1,910	0	4,531	2,000	154,997	1.2%	146,556	73.4%	26.6%
1997 ^c	221,944	53,305	4,183	0	5,262	2,002	286,696	1.5%	275,250	80.6%	19.4%
1998	183,489	46,303	8,518	0	2,842	2,000	243,152	3.5%	229,792	79.9%	20.1%
1999	132,741	53,158	5,968	0	4,976	2,000	198,842	3.0%	185,899	71.4%	28.6%
2000	133,963	41,439	4,587	0	4,504	2,000	186,493	2.5%	175,402	76.4%	23.6%
2001	128,692	44,725	5,498	0	6,002	2,002	186,919	2.9%	173,417	74.2%	25.8%
2002	298,132	45,504	6,144	0	5,353	2,000	357,133	1.7%	343,636	86.8%	13.2%
Averages											
1982-2002	193,609	37,240	9,058	50	6,171	2,189	248,315	3.6%	230,849	83.9%	16.1%
1996-2002	172,363	46,201	5,258	0	4,781	2,001	230,604	2.3%	218,565	78.9%	21.1%
1997-2002	183,160	47,406	5,816	0	4,823	2,001	243,206	2.4%	230,566	79.4%	20.6%
1999-2002	173,382	46,207	5,549	0	5,209	2,001	232,347	2.4%	219,589	79.0%	21.0%
2000-2002	186,929	43,889	5,409	0	5,286	2,001	243,515	2.2%	230,818	81.0%	19.0%

^a In 1992 the BOF allocated 83% of the total, after subtracting the net allocation, to the troll fishery and 17% to the sport fishery.

^b In 1996 the BOF allocated 80% of the total, after subtracting the net allocation, to the troll fishery and 20% to the sport fishery.

^c In 1997 the seine allocation went to 4.3% of the total, and remained in effect through 2003.

Table 5.—Risk Factor estimates (1985-2002) and allocation of Pre-Treaty Alaska hatchery Chinook salmon (1985-2002) by gear type.

Panel A: Risk Factor estimates by gear type from 1985-2002.

Year	Annette Island	Drift Gillnet	Purse Seine	Set Gillnet	Sport	Troll	Total
1985	0	19	0	0	1,177	121	1,317
1986	0	39	3	0	1,082	160	1,284
1987	0	26	0	0	1,114	307	1,449
1988	0	33	5	0	1,479	367	1,884
1989	116	28	0	0	1,169	862	2,175
1990	18	57	1	0	2,087	609	2,772
1991	437	46	1	1	2,651	443	3,579
1992	7	42	23	0	1,515	536	2,123
1993	4	123	74	0	1,132	434	1,766
1994	2	146	436	0	1,340	334	2,258
1995	0	172	1,555	0	2,212	780	4,720
1996	0	140	105	0	1,530	704	2,480
1997	6	47	19	0	1,291	644	2,008
1998	9	30	3	0	717	505	1,265
1999	6	46	0	0	1,855	317	2,223
2000	24	69	13	0	2,464	289	2,860
2001	91	131	1	0	2,576	319	3,118
2002	18	22	30	0	3,121	386	3,577

Panel B: Allocation of 5,000 Pre-Treaty Alaska hatchery Chinook salmon by gear type from 1985-2002.

Year	Annette Island	Drift Gillnet	Purse Seine	Set Gillnet	Sport	Troll	Total
1985	---	---	---	---	---	---	5,000
1986	---	---	---	---	---	---	5,000
1987	---	---	---	---	---	---	5,000
1988	---	---	---	---	---	---	5,000
1989	---	---	---	---	---	---	5,000
1990	---	---	---	---	---	---	5,000
1991	---	---	---	---	---	---	5,000
1992	85	458	16	2	403	4,060	5,023
1993	79	967	72	0	620	3,276	5,014
1994	61	1,046	182	1	845	2,871	5,006
1995	10	423	1,079	0	141	3,349	5,001
1996	14	403	272	0	522	3,790	5,001
1997	66	434	49	0	765	3,687	5,001
1998	137	362	66	0	1,122	3,315	5,001
1999	53	414	1	0	1,391	3,141	4,999
2000	207	558	4	0	312	3,920	5,001
2001	347	341	18	0	720	3,573	5,000
2002	109	228	135	0	444	4,084	5,000

Table 6.—Total Chinook salmon harvest (Total) and Alaska hatchery harvest (AK Hatchery) by gear, 1985-2002.^a

Year	Seine		Drift Gillnet		Set Gillnet		Troll		Sport		All Gear	
	Total	AK Hatchery	Total	AK Hatchery	Total	AK Hatchery	Total	AK Hatchery	Total	AK Hatchery	Total	AK Hatchery
1985	21,593	150	10,679	976	1,232	0	215,811	8,071	24,858	3,365	274,539	12,563
1986	12,132	813	8,539	1,437	1,428	0	237,703	9,886	22,551	5,239	282,353	17,375
1987	4,503	162	8,957	1,846	2,072	4	242,562	16,195	24,324	5,336	282,418	23,544
1988	11,142	320	9,658	4,474	894	0	231,364	19,503	26,160	5,112	279,312	29,409
1989	13,171	2,298	9,948	4,106	798	0	235,716	16,366	31,071	5,859	291,032	28,685
1990	11,389	2,529	15,217	9,240	663	3	287,939	29,834	51,218	11,546	366,869	53,646
1991	13,793	2,618	19,254	11,849	1,747	40	264,106	37,498	60,492	18,022	359,462	70,055
1992	18,339	1,224	11,740	7,484	2,025	10	183,759	25,738	42,892	9,464	258,791	43,934
1993	8,364	1,751	18,280	11,378	1,311	0	226,866	18,226	49,246	8,321	304,103	39,677
1994	14,839	3,201	16,918	11,767	3,897	2	186,331	12,389	42,365	9,083	264,350	36,442
1995	25,117	17,319	13,464	7,504	9,374	0	138,117	27,174	49,667	16,524	235,739	68,520
1996	22,225	20,692	10,219	5,793	4,854	0	141,452	38,365	57,509	15,229	236,259	80,079
1997	10,338	6,223	11,467	4,538	3,264	0	246,409	28,795	71,524	13,914	343,002	53,471
1998	14,503	6,054	6,207	3,903	2,804	0	192,066	12,397	55,013	8,933	270,593	31,286
1999	17,900	11,933	9,712	5,255	5,108	0	146,219	16,935	72,081	20,824	251,020	54,948
2000	22,905	18,401	16,035	11,902	2,460	0	158,717	28,963	63,173	22,910	263,290	82,176
2001	20,439	14,991	17,091	11,968	2,633	0	153,280	28,480	72,291	29,965	265,734	85,405
2002	17,695	11,717	11,484	6,508	2,510	0	325,308	31,647	69,537	26,871	426,534	76,742
Average 1985-2002	15,577	6,800	12,493	6,774	2,726	3	211,874	22,581	49,221	13,140	291,967	49,331
% total harvest	5%		4%		1%		73%		17%			
% AK hatchery		14%		14%		0%		46%		27%		

^a Includes Annette Island.

Table 7.—Southeast Alaska troll Chinook salmon harvest per fleet day during the general summer fishery, 1985-2002.^a

Year	Fishing Period	Days	Chinook salmon Harvest	Harvest/Fleet Day	Chinook salmon Abundance Index ^b
1984	June 5-30	26	130,000	5,000	1.34
	July 11-29	19	77,000	4,100	
		45	207,000	4,600	
1985	June 3-12	10	66,000	6,600	1.27
	July 1-22	22	114,000	5,200	
	August 25-26	2	13,000	8,300	
		34	193,000	5,700	
1986	June 20-July 15	26	155,000	6,000	1.48
	August 21-26	6	31,900	5,300	
	September 1-9	9	27,500	3,000	
		41	214,400	5,200	
1987	June 20-July 12	23	209,000	9,100	1.78
1988	July 1-12	12	162,000	13,500	2.04
1989	July 1- 13	13	167,000	12,800	1.85
1990	July 1- 22	22	200,000	9,100	1.84
	August 23-24	2	12,000	6,000	
		24	212,000	8,800	
1991	July 1-8	8	154,000	20,500	1.82
1992	July 1- 4	4	66,000	18,900	1.65
	August 23	1	7,000	7,000	
		5	73,000	16,200	
1993	July 1- 6	6	101,000	16,800	1.71
	August 21- 25	5	25,000	5,000	
	September 12- 20	9	19,000	2,100	
		20	145,000	7,300	
1994	July 1-7	7	98,000	14,000	1.55
	August 29 - September 2	5	20,000	4,000	
		12	118,000	9,800	
1995	July 1-10	10	76,000	7,600	0.99
	July 30-August 5	7	21,000	3,000	
		17	97,000	5,700	
1996	July 1-10	10	76,000	7,600	0.90
	August 19-20	2	8,000	4,000	
		12	84,000	7,000	
1997	July 1-7	7	122,000	17,400	1.37
	August 18-24	7	38,000	5,400	
	August 30-September 5	7	22,000	3,100	
		21	182,000	8,700	
1998	July 1-11	11	103,000	9,400	1.25
	August 20- Sept. 30	42	36,000	960	
		53	139,000	2,600	
1999	July 1- 6	6	78,000	13,000	1.16
	August 18-August 22	5	16,000	3,200	
		11	94,000	8,500	
2000	July 1-5	5	50,768	10,150	1.10
	August 11-12	2	12,423	6,210	
	August 23-30	8	24,895	3,110	
	September 12-20	9	5,679	630	
2001		24	93,765	3,910	1.14
	July 1-6	6	64,854	10,809	
	August 18-September 5	19	30,509	1,606	
2002		25	95,363	3,810	1.82
	July 1-18	18	186,998	10,389	
	August 12-September 2	22	65,266	2,967	
		40	252,264	6310	

^a The general summer fishery does not include experimental, terminal, or hatchery access fisheries, which target Alaska hatchery stocks.

^b Abundance index is estimated by the Chinook Technical Committee of the Pacific Salmon Commission.

Table 8.—Southeast Alaska all-gear Chinook salmon quota at levels of the Chinook salmon abundance index from the 1999 Agreement.

Abundance Index	All-Gear Quota
0.250	52,500
0.300	59,000
0.350	65,500
0.400	72,000
0.450	78,500
0.500	84,350
0.500	85,000
0.550	91,500
0.600	98,000
0.650	104,500
0.700	111,000
0.750	117,500
0.800	124,000
0.850	130,500
0.900	137,000
0.950	143,500
1.000	150,000
1.005	151,425
1.050	164,300
1.100	178,500
1.150	192,800
1.200	207,000
1.205	235,100
1.250	243,100
1.300	252,000
1.350	261,000
1.400	269,900
1.450	278,800
1.500	287,700
1.505	311,022
1.550	319,700
1.600	329,400
1.700	348,700
1.750	358,400
1.800	368,100
1.850	377,700
1.900	387,400
1.950	397,100
2.000	406,700
2.050	416,400
2.100	426,100
2.150	435,700
2.200	445,400
2.250	455,100

Note: Values for harvest at levels of abundance between those stated may be linearly interpolated between adjacent values.

Alaska Department of Fish & Game • 1998 SOUTHEAST ALASKA DISTRICTS

Mercator Projection • NAD27 Datum • Not For Navigational Purposes

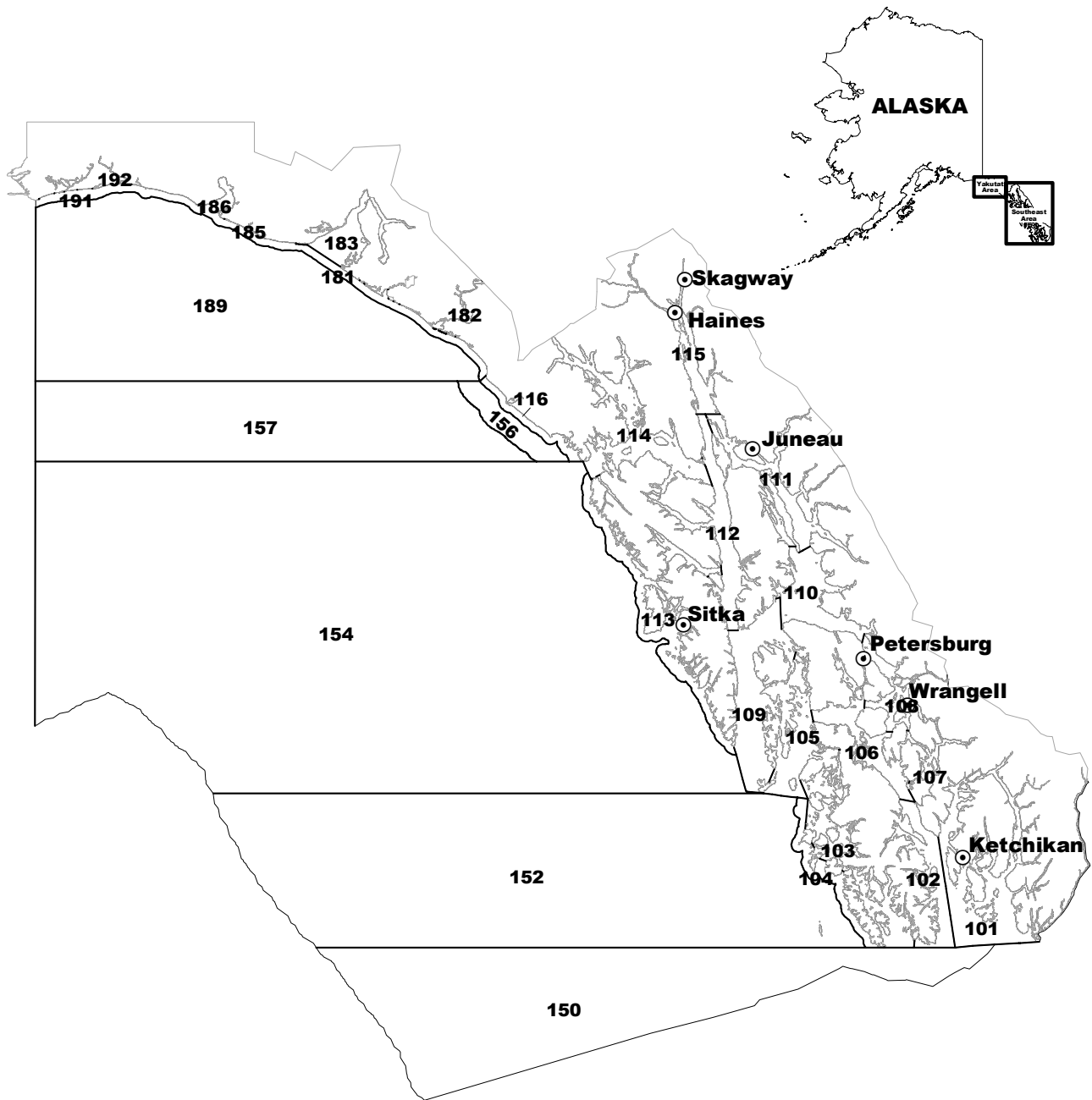


Figure 1.—Statistical fishing districts in Southeast Alaska.

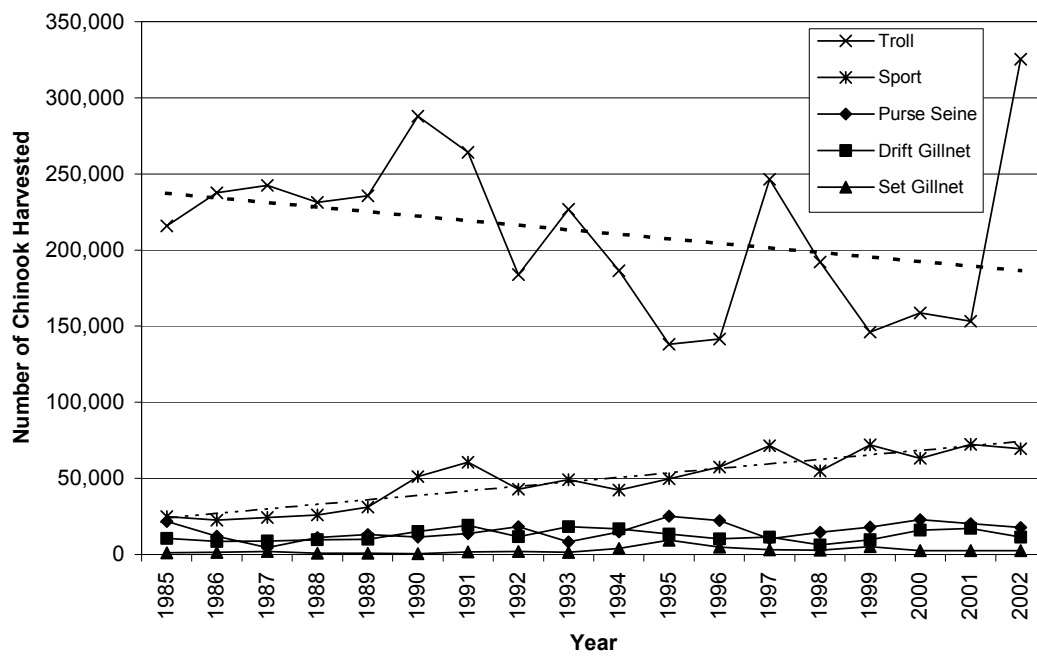


Figure 2.—Total Chinook salmon harvest (including Alaska hatchery) by gear type from 1985–2002.

**APPENDIX A: SOURCES OF ERROR IN THE ESTIMATION OF
THE NUMBER OF ALASKA HATCHERY PRODUCED CHINOOK
SALMON IN SOUTHEAST ALASKA FISHERIES**

Appendix A1.—Sources of error in the estimation of the number of Alaska-hatchery produced Chinook salmon in Southeast Alaska fisheries.

A binary Coded Wire Tag (CWT) which has been removed from the snout of a salmon and successfully read at the Alaska Department of Fish and Game Mark, Tag and Age Laboratory (tag lab) in Juneau usually represents more than one fish, sometimes many more. This is due to the fact that each tag, which is successfully read, has an associated set of expansion factors related to the untagged proportion of the group of fish represented by the tagged fish as well as to the unsampled portion of the fishery. The expansion factors, which apply to each recovered tag, are as follows:

- The first expansion factor is the tagged release to total release expansion factor. It is not usually economically and/ or logistically feasible to CWT-tag every fish released from a hatchery. Therefore, only a fraction of the fish released is actually tagged. For example, if 1,000 fish were released from a hatchery but only 200 fish were tagged, the tagged to total expansion factor would be 5, since only 1 out of every 5 fish released from the hatchery was tagged.
- The second expansion factor represents the sampling fraction, the sampled harvest to total harvest expansion factor. Since it is not economically or logistically feasible to examine every fish that is caught in a fishery for the presence of a CWT, a fraction of the harvest is sampled, usually when they are landed. The sampled fish are examined for missing adipose fins, the external mark used to identify fish containing a CWT. For example, if 500 fish were caught, but only 200 were sampled, then each recovered tag would need to be expanded by 500/200 to account for all the fish that were caught. The time/area strata used when expansion factors are computed are slightly different for each gear type. The net gears are stratified by week and district. The troll gear is stratified by period (usually corresponding to the length of an opening) and quadrant, except the spring experimental fisheries which are stratified by week and statistical area. The sport fishery is generally stratified by either biweekly or seasonal periods and port of landing.
- The third expansion factor is for lost heads. When a fish with a missing adipose fin is observed during dockside sampling for CWTs, the head is cut off and then shipped to the tag lab in Juneau. Most but not all heads make the journey successfully. If any heads are lost from a sampling stratum then each successfully decoded tag from that same stratum must be expanded to account for the lost heads. For example, if 20 heads were shipped to the tag lab but only 19 arrived successfully, each tag would need to be multiplied by 20/19 to expand for the missing heads.
- The fourth expansion factor is the tags detected to tags decoded expansion factor. When a head is received at the tag lab it is passed through a magnetic detector to determine if there is actually a CWT present in the head. If there is a CWT in the head, the head is then carefully sliced open and examined until the CWT is located. However, several things can infrequently go wrong at this stage also. The CWT may be found but the tag code may be undecipherable. The CWTs are also extremely small and although great care is taken in the extraction process, occasionally a CWT is dropped or misplaced and therefore the tag code from that CWT cannot be determined. For example, if 16 CWTs were detected but 1 tag was unreadable, the 15 remaining CWTs would need to be expanded by 16/15 to account for the CWT that was unreadable.

There are some instances where one or more of these expansions cannot be calculated and therefore the CWT cannot be expanded, but in most cases these 4 expansion factors can be applied to a successfully recovered and decoded CWT. For example, if a CWT was successfully recovered that had the 4 expansion factors from the examples above, this CWT would represent approximately 14 total fish. The calculation would be: $[(1 \text{ tag}) * (1000/200) * (500/200) * (20/19) * (16/15)]$.

Each of these expansion factors introduces some uncertainty into the estimate of the total number of fish a CWT represents. In the example above, if all the fish released from the hatchery had been tagged, if all the harvest had been examined for CWTs, if none of the heads had been lost and if all the CWTs had been

Appendix A1.—Page 2 of 2.

decoded successfully, we would know the true number of fish from the release which were caught in a fishery. This true number of fish might equal 14, like the estimate, but it could also be higher or lower. Although 14 is the appropriate estimate, the fish that weren't tagged, the harvest that wasn't sampled, the lost heads and the lost tags all introduce some uncertainty about the estimate. See Bernard and Clark (1996) for a complete description of the methodology used for estimating harvest and the associated variance for a specific salmon fishery, via the recovery of CWTs from fishery sampling, where harvest is known or estimated.

Although most commercial fisheries in Southeast Alaska have been sampled at high rates for CWTs, sampling of the sport fishery has not been nearly as extensive until recent years. In 1990 and 1991, in particular, there were large sport fisheries that went unsampled or were very poorly sampled. Since 1992, sampling of the sport fishery has been much more extensive, however, there are still some unsampled fisheries. Lower sampling rates in the sport fishery, particularly in earlier years, can lead to hatchery contribution estimates that are less precise. Also, since the sport fishery harvest is estimated, not known, the precision of the hatchery contribution estimates for the sport fishery is lower (and harvest variances are not available prior to 1988). Estimation of sport hatchery contributions is also complicated by the gap between the expanded creel survey estimates obtained inseason and the postseason mail survey estimates (available the next July); although the problems involved with merging these estimates in the CWT database have been mostly resolved.

**APPENDIX B: TOTAL HARVESTS, ALASKA HATCHERY
CONTRIBUTIONS, TREATY HARVESTS AND TERMINAL
EXCLUSIONS OF CHINOOK SALMON IN SOUTHEAST ALASKA,
1985-2002**

Appendix B1.—Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1979.

Fishery	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution			Non-Alaska Hatchery Harvest
			General Fisheries	Terminal	Subtotal	
<u>Net Fisheries</u>						
General Drift Gillnet	13,738	13,738	414	0	414	13,324
Annette Drift Gillnet	89	89	0	0	0	89
Drift Gillnet Subtotal	13,827	13,827	414	0	414	13,413
Setnet	4,232	4,232	0	0	0	4,232
General Seine	10,079	10,079	0	0	0	10,079
Annette Seine	0	0	0	0	0	0
Seine Subtotal	10,079	10,079	0	0	0	10,079
Annette Trap	250	250	0	0	0	250
Total Net Fisheries	28,388	28,388	414	0	414	27,974
<u>Troll Fishery</u>						
Winter Oct. 1 - Dec. 31	3,366		0	0	0	3,366
Winter Jan. 1 - April 14	1,757		0	0	0	1,757
Winter Total	5,123		0	0	0	5,123
Spring Hatchery	0		0	0	0	0
Spring Hatchery Access	0		0	0	0	0
Spring Terminal	0		0	0	0	0
Spring Total	0		0	0	0	0
Summer June 5-30	332,549		104	0	104	332,445
Summer July 11-29	0		0	0	0	0
Summer Total	332,549		104	0	104	332,445
Annette Troll	0		0	0	0	0
Total Troll	337,672		104	0	104	337,568
Sport Total	16,581	16,581	0	0	0	16,581
Grand Total	382,641		518	0	518	382,123

Appendix B2.—Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1980.

	Total	Common	Alaska Hatchery Contribution			Non-Alaska
			General			
Fishery	Harvest	Property Harvest	Fisheries	Terminal	Subtotal	Hatchery Harvest
<u>Net Fisheries</u>						
General Drift Gillnet	5,433	5,433	323	0	323	5,110
Annette Drift Gillnet	38	38	0	0	0	38
Drift Gillnet Subtotal	5,471	5,471	323	0	323	5,148
Setnet	2,800	2,800	0	0	0	2,800
General Seine	11,701	11,701	52	0	52	11,649
Annette Seine	3	3	0	0	0	3
Seine Subtotal	11,704	11,704	52	0	52	11,652
Annette Trap	139	139	0	0	0	139
Total Net Fisheries	20,114	20,114	375	0	375	19,739
<u>Troll Fishery</u>						
Winter Oct. 1 - Dec. 31	3,993		0	0	0	3,993
Winter Jan. 1 - April 14	4,046		0	0	0	4,046
Winter Total	8,039		0	0	0	8,039
Spring Hatchery	0		0	0	0	0
Spring Hatchery Access	0		0	0	0	0
Spring Terminal	0		0	0	0	0
Spring Total	0		0	0	0	0
Summer June 5-30	178,414		3,353	0	3,353	175,061
Summer July 11-29	117,190		2,520	0	2,520	114,670
Summer Total	295,604		5,873	0	5,873	289,731
Annette Troll	0		0	0	0	0
Total Troll	303,643		5,873	0	5,873	297,770
Sport Total	20,213	20,213	0	0	0	20,213
Grand Total	343,970		6,248	0	6,248	337,722

Appendix B3.—Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1981.

	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution			Non-Alaska Hatchery Harvest
			General Fisheries	Terminal	Subtotal	
Fishery						
<u>Net Fisheries</u>						
General Drift Gillnet	6,318	6,318	43	0	43	6,275
Annette Drift Gillnet	211	211	0	0	0	211
Drift Gillnet Subtotal	6,529	6,529	43	0	43	6,486
Setnet	2,069	2,069	0	0	0	2,069
General Seine	10,264	10,264	8	0	8	10,256
Annette Seine	4	4	0	0	0	4
Seine Subtotal	10,268	10,268	8	0	8	10,260
Annette Trap	86	86	0	0	0	86
Total Net Fisheries	18,952	18,952	51	0	51	18,901
<u>Troll Fishery</u>						
Winter Oct. 1 - Dec. 31	1,737		0	0	0	1,737
Winter Jan. 1 - April 14	7,907		0	0	0	7,907
Winter Total	9,644		0	0	0	9,644
Spring Hatchery	0		0	0	0	0
Spring Hatchery Access	0		0	0	0	0
Spring Terminal	0		0	0	0	0
Spring Total	0		0	0	0	0
Summer June 5-30	137,250		1,757	0	1,757	135,493
Summer July 11-29	85,079		173	0	173	84,906
Summer Total	239,138		1,949	0	1,949	237,189
Annette Troll	0		0	0	0	0
Total Troll	248,782		1,949	0	1,949	246,833
Sport Total	21,300	21,300	0	0	0	21,300
Grand Total	289,034		2,000	0	2,000	287,034

Appendix B4.—Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1982.

Fishery	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution			Non-Alaska Hatchery Harvest
			General Fisheries	Terminal	Subtotal	
<u>Net Fisheries</u>						
General Drift Gillnet	14,731	14,708	54	23	77	14,654
Annette Drift Gillnet	258	258	0	0	0	258
Drift Gillnet Subtotal	14,989	14,966	54	23	77	14,912
Setnet	1,456	1,456	0	0	0	1,456
General Seine	30,529	30,529	19	0	19	30,510
Annette Seine	18	18	0	0	0	18
Seine Subtotal	30,547	30,547	19	0	19	30,528
Annette Trap	0	0	0	0	0	0
Total Net Fisheries	46,992	46,969	74	23	97	46,895
<u>Troll Fishery</u>						
Winter Oct. 1 - Dec. 31	4,865		0	0	0	4,865
Winter Jan. 1 - April 14	7,721		23	0	23	7,698
Winter Total	12,586		23	0	23	12,563
Spring Hatchery	0		0	0	0	0
Spring Hatchery Access	0		0	0	0	0
Spring Terminal	0		0	0	0	0
Spring Total	0		0	0	0	0
Summer June 5-30	85,699		257	0	257	85,442
Summer July 11-29	143,653		656	0	656	142,997
Summer Total	229,352		913	0	913	228,439
Annette Troll	0		0	0	0	0
Total Troll	241,938		937	0	937	241,001
Sport Total	25,756	25,756	0	0	0	25,756
Grand Total	314,686		1,010	23	1,033	313,653

Appendix B5.—Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1983.

	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution			Non-Alaska Hatchery Harvest
			General Fisheries	Terminal	Subtotal	
Fishery						
<u>Net Fisheries</u>						
General Drift Gillnet	4,734	4,734	54	0	54	4,680
Annette Drift Gillnet	170	170	0	0	0	170
Drift Gillnet Subtotal	4,904	4,904	54	0	54	4,850
Setnet	976	976	0	0	0	976
General Seine	13,439	13,439	20	0	20	13,419
Annette Seine	3	3	0	0	0	3
Seine Subtotal	13,442	13,442	20	0	20	13,422
Annette Trap	194	194	0	0	0	194
Total Net Fisheries	19,516	19,516	74	0	74	19,442
<u>Troll Fishery</u>						
Winter Oct. 1 - Dec. 31	12,517		0	0	0	12,517
Winter Jan. 1 - April 14	18,736		56	0	56	18,680
Winter Total	31,253		56	0	56	31,197
Spring Hatchery	0		0	0	0	0
Spring Hatchery Access	0		0	0	0	0
Spring Terminal	0		0	0	0	0
Spring Total	0		0	0	0	0
Summer June 5-30	100,611		928	0	928	99,683
Summer July 11-29	137,957		782	0	782	137,175
Summer Total	238,568		1,710	0	1,710	236,858
Annette Troll	0		0	0	0	0
Total Troll	269,821		1,767	0	1,767	268,054
Sport Total	22,321	22,016	435	305	740	21,581
Grand Total	311,658		2,275	305	2,580	309,078

Appendix B6.—Total harvests and Alaska hatchery contributions of Chinook salmon in Southeast Alaska in 1984.

Fishery	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution			Non-Alaska Hatchery Harvest
			General Fisheries	Terminal	Subtotal	
<u>Net Fisheries</u>						
General Drift Gillnet	10,345	10,345	407	0	407	9,938
Annette Drift Gillnet	39	39	0	0	0	39
Drift Gillnet Subtotal	10,384	10,384	407	0	407	9,977
Setnet	1,062	1,062	0	0	0	1,062
General Seine	20,762	20,762	47	0	47	20,715
Annette Seine	15	15	0	0	0	15
Seine Subtotal	20,777	20,777	47	0	47	20,730
Annette Trap	182	182	0	0	0	182
Total Net Fisheries	32,405	32,405	455	0	455	31,950
<u>Troll Fishery</u>						
Winter Oct. 1 - Dec. 31	14,211		38	0	38	14,173
Winter Jan. 1 - April 14	19,049		162	0	162	18,887
Winter Total	33,260		199	0	199	33,061
Spring Hatchery	0		0	0	0	0
Spring Hatchery Access	0		0	0	0	0
Spring Terminal	0		0	0	0	0
Spring Total	0		0	0	0	0
Summer June 5-30	127,347		2,551	0	2,551	124,796
Summer July 11-29	75,015		503	0	503	74,512
Summer Total	202,362		3,054	0	3,054	199,308
Annette Troll	0		0	0	0	0
Total Troll	235,622		3,253	0	3,253	232,369
Sport Total	22,050	21,945	1,826	105	1,931	20,119
Grand Total	290,077		5,533	105	5,638	284,439

Appendix B7.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1985.

Fishery	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
<u>Net Fisheries</u>									
General Drift Gillnet	10,387	10,387	976	0	976	469	488	19	9,918
Annette Drift Gillnet	292	292	0	0	0	0	0	0	292
Gillnet Subtotal	10,679	10,679	976	0	976	469	488	19	10,210
Setnet	1,232	1,232	0	0	0	0	0	0	1,232
General Seine	21,546	21,546	150	0	150	72	78	0	21,474
Annette Seine	47	47	0	0	0	0	0	0	47
Seine Subtotal	21,593	21,593	150	0	150	72	78	0	21,521
Annette Trap	366	366	0	0	0	0	0	0	366
Total Net Fisheries	33,870	33,870	1,126	0	1,126	541	566	19	33,329
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	14,235		998	0	998	479			13,756
Winter Jan. 1 - April 14	8,590		291	0	291	140			8,450
Winter Total	22,825		1,288	0	1,288	619			22,206
Spring Hatchery	0		0	0	0	0			0
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	0		0	0	0	0			0
Spring Total	0		0	0	0	0			0
Summer June 3-12	65,377		3,644	0	3,644	1,751			63,626
Summer July 1-22	114,372		2,733	0	2,733	1,313			113,059
Summer Aug. 25-26	13,229		407	0	407	195			13,034
Summer Total	192,978		6,783	0	6,783	3,259			189,719
Annette Troll	8		0	0	0	0			8
Total Troll	215,811		8,071	0	8,071	3,878	4,072	121	211,933
Sport Total	24,858	24,455	2,962	403	3,365	1,826	422	1,117	23,032
Grand Total	274,539		12,160	403	12,563	6,246	5,060	1,257	268,293

Appendix B8.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1986.

	Total	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery	Harvest	Harvest							
Net Fisheries									
General Drift Gillnet	8,441	8,196	1,192	245	1,437	975	423	39	7,466
Annette Drift Gillnet	98	98	0	0	0	0	0	0	98
Gillnet Subtotal	8,539	8,294	1,192	245	1,437	975	423	39	7,564
Setnet	1,428	1,428	0	0	0	0	0	0	1,428
General Seine	12,113	11,952	652	161	813	560	250	3	11,553
Annette Seine	19	19	0	0	0	0	0	0	19
Seine Subtotal	12,132	11,971	652	161	813	560	250	3	11,572
Annette Trap	0	0	0	0	0	0	0	0	0
Total Net Fisheries	22,099	21,693	1,844	406	2,250	1,535	673	42	20,564
Troll Fishery									
Winter Oct. 1 - Dec. 31	16,779		1,110	0	1,110	680			16,099
Winter Jan. 1 - April 14	6,147		198	0	198	121			6,026
Winter Total	22,926		1,308	0	1,308	801			22,125
Spring Hatchery	776		240	0	240	147			629
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	0		0	0	0	0			0
Spring Total	776		240	0	240	147			629
Summer June 3-12	154,623		5,789	0	5,789	3,545			151,078
Summer July 1-22	31,878		1,346	0	1,346	824			31,054
Summer Aug. 25-26	27,496		1,203	0	1,203	737			26,759
Summer Total	213,997		8,338	0	8,338	5,106			208,891
Annette Troll	4		0	0	0	0			4
Total Troll	237,703		9,886	0	9,886	6,054	3,672	160	231,649
Sport Total	22,551	21,793	4,481	758	5,239	3,502	655	1,082	19,049
Grand Total	282,353		16,211	1,164	17,375	11,091	5,000	1,284	271,262

Appendix B9.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1987.

	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery									
<u>Net Fisheries</u>									
General Drift Gillnet	8,430	8,069	1,485	361	1,846	1,417	404	26	7,013
Annette Drift Gillnet	527	527	0	0	0	0	0	0	527
Gillnet Subtotal	8,957	8,596	1,485	361	1,846	1,417	404	26	7,540
Setnet	2,072	2,072	4	0	4	3	1	0	2,069
General Seine	4,498	4,434	98	64	162	134	28	0	4,364
Annette Seine	5	5	0	0	0	0	0	0	5
Seine Subtotal	4,503	4,439	98	64	162	134	28	0	4,369
Annette Trap	0	0	0	0	0	0	0	0	0
Total Net Fisheries	15,532	15,107	1,587	425	2,012	1,553	433	26	13,979
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	18,453		1,804	0	1,804	1,282			17,171
Winter Jan. 1 - April 14	10,075		1,131	0	1,131	804			9,271
Winter Total	28,528		2,935	0	2,935	2,086			26,442
Spring Hatchery	4,488		1,548	0	1,548	1,100			3,388
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	0		0	0	0	0			0
Spring Total	4,488		1,548	0	1,548	1,100			3,388
Summer June 3-12	209,513		11,712	0	11,712	8,324			201,189
Summer July 1-22	0		0	0	0	0			0
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	209,513		11,712	0	11,712	8,324			201,189
Annette Troll	33		1	0	1	1			32
Total Troll	242,562		16,195	0	16,195	11,511	4,377	307	231,051
Sport Total	24,324	23,502	4,514	822	5,336	4,030	192	1,114	20,294
Grand Total	282,418		22,297	1,247	23,544	17,095	5,002	1,447	265,323

Appendix B10.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1988.

	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
<u>Net Fisheries</u>									
General Drift Gillnet	9,079	6,164	1,559	2,915	4,474	4,054	387	33	5,025
Annette Drift Gillnet	579	579	0	0	0	0	0	0	579
Gillnet Subtotal	9,658	6,743	1,559	2,915	4,474	4,054	387	33	5,604
Setnet	894	894	0	0	0	0	0	0	894
General Seine	11,137	10,945	128	192	320	286	30	5	10,851
Annette Seine	5	5	0	0	0	0	0	0	5
Seine Subtotal	11,142	10,950	128	192	320	286	30	5	10,856
Annette Trap	94	94	0	0	0	0	0	0	94
Total Net Fisheries	21,788	18,681	1,688	3,107	4,795	4,340	417	38	17,448
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	44,765		7,015	0	7,015	5,125			39,640
Winter Jan. 1 - April 14	15,684		1,302	0	1,302	951			14,733
Winter Total	60,449		8,316	0	8,316	6,076			54,373
Spring Hatchery	8,505		2,931	0	2,931	2,142			6,363
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	100		0	100	100	100			0
Spring Total	8,605		2,931	100	3,031	2,242			6,363
Summer June 3-12	162,047		8,141	0	8,141	5,948			156,099
Summer July 1-22	0		0	0	0	0			0
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	162,047		8,141	0	8,141	5,948			156,099
Annette Troll	263		14	0	14	11			252
Total Troll	231,364		19,403	100	19,503	14,276	4,859	367	217,088
Sport Total	26,160	25,514	4,466	646	5,112	3,909	-276	1,479	22,251
Grand Total	279,312		25,556	3,853	29,409	22,525	5,000	1,884	256,787

Appendix B11.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1989.

	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery									
<u>Net Fisheries</u>									
General Drift Gillnet	9,579	7,441	1,626	2,138	3,764	3,255	480	28	6,324
Annette Drift Gillnet	369	369	342	0	342	235	58	49	134
Gillnet Subtotal	9,948	7,810	1,968	2,138	4,106	3,491	538	77	6,457
Setnet	798	798	0	0	0	0	0	0	798
General Seine	13,098	11,218	38	1,880	1,918	1,906	12	0	11,192
Annette Seine	73	73	380	0	380	261	64	55	-188
Seine Subtotal	13,171	11,291	418	1,880	2,298	2,167	76	55	11,004
Annette Trap	328	328	56	0	56	38	9	8	290
Total Net Fisheries	24,245	20,227	2,442	4,018	6,460	5,696	624	140	18,549
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	24,425		4,056	0	4,056	2,788			21,637
Winter Jan. 1 - April 14	9,872		861	0	861	591			9,281
Winter Total	34,297		4,916	0	4,916	3,379			30,918
Spring Hatchery	2,352		922	0	922	634			1,718
Spring Hatchery Access	30,540		3,756	0	3,756	2,581			27,959
Spring Terminal	913		0	913	913	913			0
Spring Total	33,805		4,678	913	5,591	4,128			29,677
Summer June 3-12	167,492		5,831	0	5,831	4,008			163,484
Summer July 1-22	0		0	0	0	0			0
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	167,492		5,831	0	5,831	4,008			163,484
Annette Troll	122		28	0	28	19			103
Total Troll	235,716		15,453	913	16,366	11,534	3,970	862	224,182
Sport Total	31,071	30,261	5,049	810	5,859	4,280	410	1,169	26,791
Grand Total	291,032		22,944	5,741	28,685	21,510	5,004	2,171	269,522

Appendix B12.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1990.

	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
<u>Net Fisheries</u>									
General Drift Gillnet	14,693	8,529	2,701	6,164	8,865	8,374	434	57	6,319
Annette Drift Gillnet	524	524	375	0	375	307	61	7	217
Gillnet Subtotal	15,217	9,053	3,076	6,164	9,240	8,680	495	64	6,537
Setnet	663	663	3	0	3	2	1	0	661
General Seine	11,355	8,894	68	2,461	2,529	2,517	11	1	8,838
Annette Seine	34	34	0	0	0	0	0	0	34
Seine Subtotal	11,389	8,928	68	2,461	2,529	2,517	11	1	8,872
Annette Trap	443	443	494	0	494	404	81	9	39
Total Net Fisheries	27,712	19,087	3,641	8,625	12,266	11,604	588	74	16,108
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	17,617		3,188	0	3,188	2,608			15,009
Winter Jan. 1 - April 14	15,513		1,245	0	1,245	1,019			14,494
Winter Total	33,130		4,434	0	4,434	3,627			29,503
Spring Hatchery	7,052		4,255	0	4,255	3,481			3,571
Spring Hatchery Access	34,954		6,752	0	6,752	5,524			29,430
Spring Terminal	16		0	16	16	16			0
Spring Total	42,022		11,007	16	11,023	9,021			33,001
Summer June 3-12	200,090		13,037	0	13,037	10,666			189,424
Summer July 1-22	11,858		1,250	0	1,250	1,023			10,835
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	211,948		14,288	0	14,288	11,689			200,259
Annette Troll	839		90	0	90	73			766
Total Troll	287,939		29,818	16	29,834	24,411	4,814	609	263,528
Sport Total	51,218	48,951	9,279	2,267	11,546	9,858	-399	2,087	41,360
Grand Total	366,869		42,738	10,908	53,646	45,873	5,002	2,770	320,996

Appendix B13.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1991.

Fishery	Total Harvest	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
<u>Net Fisheries</u>									
General Drift Gillnet	18,456	9,458	2,372	8,998	11,370	10,981	344	46	7,475
Annette Drift Gillnet	798	798	479	0	479	400	-42	120	398
Gillnet Subtotal	19,254	10,256	2,851	8,998	11,849	11,381	302	166	7,873
Setnet	1,747	1,747	40	0	40	34	6	1	1,713
General Seine	11,599	10,391	181	1,208	1,389	1,359	29	1	10,240
Annette Seine	2,194	2,194	1,229	0	1,229	1,027	-108	309	1,167
Seine Subtotal	13,793	12,585	1,410	1,208	2,618	2,387	-79	310	11,406
Annette Trap	70	70	28	0	28	24	-2	7	46
Total Net Fisheries	34,864	24,658	4,330	10,206	14,536	13,825	226	485	21,039
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	19,920		7,204	0	7,204	6,021			13,899
Winter Jan. 1 - April 14	22,719		3,039	0	3,039	2,540			20,179
Winter Total	42,639		10,243	0	10,243	8,561			34,078
Spring Hatchery	13,987		6,129	0	6,129	5,123			8,864
Spring Hatchery Access	46,647		8,660	0	8,660	7,238			39,409
Spring Terminal	5,860		0	5,860	5,860	5,860			0
Spring Total	66,494		14,789	5,860	20,649	18,221			48,273
Summer June 3-12	154,020		6,605	0	6,605	5,521			148,499
Summer July 1-22	0		0	0	0	0			0
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	154,020		6,605	0	6,605	5,521			148,499
Annette Troll	953		0	0	0	0			953
Total Troll	264,106		31,638	5,860	37,498	32,303	4,751	443	231,803
Sport Total	60,492	58,754	16,284	1,738	18,022	15,348	23	2,651	45,144
Grand Total	359,462		52,251	17,804	70,055	61,476	5,000	3,579	297,986

Appendix B14.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1992.

	Total	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery	Harvest	Harvest							
<u>Net Fisheries</u>									
General Drift Gillnet	11,285	6,334	2,352	4,951	7,303	6,803	458	42	4,482
Annette Drift Gillnet	455	455	181	0	181	142	35	3	313
Gillnet Subtotal	11,740	6,789	2,533	4,951	7,484	6,945	493	45	4,795
Setnet	2,025	2,025	10	0	10	8	2	0	2,017
General Seine	18,024	17,111	186	913	1,099	1,059	16	23	16,965
Annette Seine	315	315	125	0	125	99	25	2	216
Seine Subtotal	18,339	17,426	311	913	1,224	1,158	41	25	17,181
Annette Trap	36	36	14	0	14	11	3	0	25
Total Net Fisheries	32,140	26,276	2,868	5,864	8,732	8,123	539	70	24,017
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	28,277		4,750	0	4,750	3,741			24,536
Winter Jan. 1 - April 14	43,554		2,238	0	2,238	1,762			41,792
Winter Total	71,831		6,988	0	6,988	5,503			66,328
Spring Hatchery	11,229		5,604	0	5,604	4,413			6,816
Spring Hatchery Access	23,609		6,460	0	6,460	5,087			18,522
Spring Terminal	4,118		0	4,118	4,118	4,118			0
Spring Total	38,956		12,064	4,118	16,182	13,617			25,339
Summer June 3-12	65,627		2,268	0	2,268	1,786			63,841
Summer July 1-22	6,941		189	0	189	149			6,792
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	72,568		2,457	0	2,457	1,935			70,633
Annette Troll	404		111	0	111	87			317
Total Troll	183,759		21,620	4,118	25,738	21,142	4,060	536	162,617
Sport Total	42,892	42,449	9,021	443	9,464	7,546	403	1,515	35,346
Grand Total	258,791		33,509	10,425	43,934	36,811	5,002	2,121	221,980

Appendix B15.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1993.

	Total	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery	Harvest	Harvest							
<u>Net Fisheries</u>									
General Drift Gillnet	18,011	11,437	4,520	6,574	11,094	10,004	967	123	8,007
Annette Drift Gillnet	269	269	284	0	284	215	65	3	54
Gillnet Subtotal	18,280	11,706	4,804	6,574	11,378	10,220	1,032	126	8,060
Setnet	1,311	1,311	0	0	0	0	0	0	1,311
General Seine	8,335	7,190	606	1,145	1,751	1,605	72	74	6,730
Annette Seine	29	29	0	0	0	0	0	0	29
Seine Subtotal	8,364	7,219	606	1,145	1,751	1,605	72	74	6,759
Annette Trap	36	36	0	0	0	0	0	0	36
Total Net Fisheries	27,991	20,272	5,410	7,719	13,129	11,825	1,104	200	16,166
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	20,275		2,207	0	2,207	1,675			18,600
Winter Jan. 1 - April 14	42,447		1,656	0	1,656	1,257			41,190
Winter Total	62,722		3,863	0	3,863	2,931			59,791
Spring Hatchery	15,837		6,525	0	6,525	4,952			10,885
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	2,842		0	2,842	2,842	2,842			0
Spring Total	18,679		6,525	2,842	9,367	7,794			10,885
Summer June 3-12	101,164		3,189	0	3,189	2,420			98,744
Summer July 1-22	24,865		446	0	446	338			24,527
Summer Aug. 25-26	19,131		1,300	0	1,300	987			18,144
Summer Total	145,160		4,935	0	4,935	3,745			141,415
Annette Troll	305		61	0	61	46			259
Total Troll	226,866		15,384	2,842	18,226	14,516	3,276	434	212,350
Sport Total	49,246	48,189	7,264	1,057	8,321	6,569	620	1,132	42,677
Grand Total	304,103		28,059	11,618	39,677	32,910	5,000	1,766	271,193

Appendix B16.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1994.

	Total	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery	Harvest	Harvest							
<u>Net Fisheries</u>									
General Drift Gillnet	16,735	9,756	4,571	6,979	11,550	10,358	1,046	146	6,377
Annette Drift Gillnet	183	183	217	0	217	160	55	2	23
Gillnet Subtotal	16,918	9,939	4,788	6,979	11,767	10,519	1,101	148	6,399
Setnet	3,897	3,897	2	0	2	2	1	0	3,895
General Seine	14,824	13,995	2,372	829	3,201	2,582	182	436	12,242
Annette Seine	15	15	0	0	0	0	0	0	15
Seine Subtotal	14,839	14,010	2,372	829	3,201	2,582	182	436	12,257
Annette Trap	0	0	0	0	0	0	0	0	0
Total Net Fisheries	35,654	27,846	7,162	7,808	14,970	13,102	1,284	584	22,552
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	35,193		1,007	0	1,007	744			34,449
Winter Jan. 1 - April 14	21,175		967	0	967	715			20,460
Winter Total	56,368		1,974	0	1,974	1,459			54,909
Spring Hatchery	11,269		4,939	0	4,939	3,651			7,618
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	100		0	100	100	100			0
Spring Total	11,369		4,939	100	5,039	3,751			7,618
Summer June 3-12	98,338		4,252	0	4,252	3,143			95,195
Summer July 1-22	20,224		1,100	0	1,100	813			19,411
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	118,562		5,352	0	5,352	3,956			114,606
Annette Troll	32		25	0	25	19			13
Total Troll	186,331		12,289	100	12,389	9,185	2,871	334	177,146
Sport Total	42,365	41,663	8,381	702	9,083	6,898	845	1,340	35,467
Grand Total	264,350		27,832	8,610	36,442	29,185	5,000	2,258	235,165

Appendix B17.—Total harvests, Alaska hatchery contributions and Treaty harvests of Chinook salmon in Southeast Alaska in 1995.

	Total	Common Property Harvest	Alaska Hatchery Contribution						Treaty Harvest
			General Fisheries	Terminal	Subtotal	Add-on	Hatchery Base	Risk Factor	
Fishery	Harvest	Harvest							
<u>Net Fisheries</u>									
General Drift Gillnet	13,342	9,607	3,722	3,735	7,457	6,862	423	172	6,480
Annette Drift Gillnet	122	122	47	0	47	39	7	0	83
Gillnet Subtotal	13,464	9,729	3,769	3,735	7,504	6,901	430	172	6,563
Setnet	9,374	9,374	0	0	0	0	0	0	9,374
General Seine	25,106	24,290	16,486	816	17,302	14,668	1,079	1,555	10,438
Annette Seine	11	11	17	0	17	15	3	0	-4
Seine Subtotal	25,117	24,301	16,503	816	17,319	14,682	1,082	1,555	10,435
Annette Trap	0	0	0	0	0	0	0	0	0
Total Net Fisheries	47,955	43,404	20,272	4,551	24,823	21,584	1,512	1,727	26,371
<u>Troll Fishery</u>									
Winter Oct. 1 - Dec. 31	10,382		1,265	0	1,265	1,063			9,319
Winter Jan. 1 - April 14	7,486		866	0	866	728			6,758
Winter Total	17,868		2,131	0	2,131	1,790			16,078
Spring Hatchery	21,750		13,990	0	13,990	11,755			9,995
Spring Hatchery Access	0		0	0	0	0			0
Spring Terminal	1,333		0	1,333	1,333	1,333			0
Spring Total	23,083		13,990	1,333	15,323	13,088			9,995
Summer June 3-12	75,889		8,139	0	8,139	6,839			69,050
Summer July 1-22	21,277		1,581	0	1,581	1,328			19,949
Summer Aug. 25-26	0		0	0	0	0			0
Summer Total	97,166		9,720	0	9,720	8,167			88,999
Annette Troll	0		0	0	0	0			0
Total Troll	138,117		25,841	1,333	27,174	23,045	3,349	780	115,072
Sport Total	49,667	47,867	14,724	1,800	16,524	14,171	141	2,212	35,496
Grand Total	235,739		60,836	7,684	68,520	58,800	5,001	4,719	176,939

Appendix B18.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1996.

Fishery	Common		Alaska Hatchery Contribution						Wild		
	Total Harvest	Property Harvest	General Fisheries	Terminal	Subtotal	Hatchery Add-on	Risk Base	Factor	Terminal Exclusion Base	Terminal Exclusion Harvest	Treaty Harvest
<u>Net Fisheries</u>											
General Drift Gillnet	9,982	6,483	2,679	3,047	5,726	5,183	403	140	1,708	452	4,347
Annette Drift Gillnet	237	237	67	0	67	53	14	0	0		184
Gillnet Subtotal	10,219	6,720	2,746	3,047	5,793	5,236	417	140	1,708	452	4,531
Setnet	4,854	2,000	0	0	0	0	0	0	2,000	2,854	2,000
General Seine	22,224	3,392	1,860	18,832	20,692	20,315	272	105	282		1,909
Annette Seine	1	1	0	0	0	0	0	0	0		1
Seine Subtotal	22,225	3,393	1,860	18,832	20,692	20,315	272	105	282		1,910
Annette Trap	0	0	0	0	0	0	0	0	0		0
Total Net Fisheries	37,298	12,113	4,606	21,879	26,485	25,551	689	245	3,990	3,306	8,441
<u>Troll Fishery</u>											
Winter Oct. 11 - Dec. 31	6,008		1,311	0	1,311	1,045					4,963
Winter Jan. 1 - April 14	3,393		342	0	342	273					3,120
Winter Total	9,401		1,653	0	1,653	1,318					8,083
Spring Hatchery	30,963		15,672	0	15,672	12,495					18,468
Spring Hatchery Access	0		0	0	0	0					0
Spring Terminal	16,416		0	16,198	16,198	16,198			218		218
Spring Total	47,379		15,672	16,198	31,870	28,693					18,686
Summer July 1-10	76,392		4,639	0	4,639	3,699					72,693
Summer Aug. 19-20	8,275		203	0	203	162					8,113
Summer 4	0		0	0	0	0					0
Summer Total	84,667		4,843	0	4,843	3,861					80,806
Annette Troll	5		0	0	0	0					5
Total Troll	141,452		22,167	16,198	38,365	33,871	3,790	704	218		107,581
Sport Total	57,509	47,047	10,124	5,105	15,229	13,177	522	1,530	2,057	5,357	38,975
Grand Total	236,259		36,897	43,182	80,079	72,599	5,001	2,479	6,265	8,663	154,997

Note: Wild terminal exclusions were: 2,612 from the Situk River and 2,745 from the Taku River in the sport fishery, 2,854 from the Yakutat area in the setnet fishery and 452 from the Taku River in the drift gillnet fishery.

Appendix B19.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1997.

Fishery	Common		Alaska Hatchery Contribution						Wild		
	Total Harvest	Property Harvest	General Fisheries	Terminal	Subtotal	Hatchery Add-on	Risk Base	Factor	Terminal Exclusion Base	Terminal Exclusion Harvest	Treaty Harvest
<u>Net Fisheries</u>											
General Drift Gillnet	11,006	6,752	2,178	2,033	4,211	3,730	434	47	2,110	2,221	5,055
Annette Drift Gillnet	461	461	326	0	326	254	66	6	0		207
Gillnet Subtotal	11,467	7,213	2,505	2,033	4,538	3,985	500	53	2,110	2,221	5,262
Setnet	3,264	2,002	0	0	0	0	0	0	2,000	1,262	2,002
General Seine	10,309	4,393	307	5,916	6,223	6,155	49	19	190		4,154
Annette Seine	29	29	0	0	0	0	0	0	0		29
Seine Subtotal	10,338	4,422	307	5,916	6,223	6,155	49	19	190		4,183
Annette Trap	0	0	0	0	0	0	0	0	0		0
Total Net Fisheries	25,069	13,637	2,812	7,949	10,761	10,140	549	72	4,300	3,482	11,447
<u>Troll Fishery</u>											
Winter Oct. 11 - Dec. 31	13,252		1,089	0	1,089	849					12,403
Winter Jan. 1 - April 14	7,705		654	0	654	510					7,195
Winter Total	20,957		1,743	0	1,743	1,358					19,599
Spring Hatchery	33,223		13,556	0	13,556	10,562					22,661
Spring Hatchery Access	0		0	0	0	0					0
Spring Terminal	9,499		0	9,189	9,189	9,189			310		310
Spring Total	42,722		13,556	9,189	22,744	19,750					22,972
Summer July 1-7	122,482		3,532	0	3,532	2,752					119,730
Summer Aug. 18-24	49,632		657	0	657	512					49,120
Summer 8/30 - 9/5	10,601		118	0	118	92					10,509
Summer Total	182,715		4,308	0	4,308	3,356					179,359
Annette Troll	15		0	0	0	0					15
Total Troll	246,409		19,607	9,189	28,795	24,465	3,687	644	310		221,944
Sport Total	71,524	60,557	9,308	4,606	13,914	11,858	765	1,291	4,359	6,361	53,305
Grand Total	343,002		31,727	21,744	53,471	46,463	5,001	2,007	8,969	9,843	286,696

Note: Wild terminal exclusions were: 2,028 from the Situk River, 3,160 from the Taku River and 1,173 from the Stikine River in the sport fishery; 1,262 from the Yakutat area in the setnet fishery; 824 from the Taku River and 1,387 from the Stikine River in the drift gillnet fishery.

Appendix B20.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1998.

Fishery	Common		Alaska Hatchery Contribution						Wild		
	Total Harvest	Property Harvest	General Fisheries	Terminal	Subtotal	Hatchery Add-on	Risk Base	Factor	Terminal Exclusion Base	Terminal Exclusion Harvest	Treaty Harvest
<u>Net Fisheries</u>											
General Drift Gillnet	5,937	3,605	1,145	2,332	3,477	3,085	362	30	0	0	2,852
Annette Drift Gillnet	270	270	425	0	425	280	137	9	0		-10
Gillnet Subtotal	6,207	3,875	1,571	2,332	3,903	3,365	498	39	0	0	2,842
Setnet	2,804	2,000	0	0	0	0	0	0	2,000	804	2,000
General Seine	14,469	8,616	201	5,853	6,054	5,985	66	3	417		8,484
Annette Seine	34	34	0	0	0	0	0	0	0		34
Seine Subtotal	14,503	8,650	201	5,853	6,054	5,985	66	3	417		8,518
Annette Trap	0	0	0	0	0	0	0	0	0		0
Total Net Fisheries	23,514	14,525	1,772	8,185	9,957	9,350	564	42	2,417	804	13,360
<u>Troll Fishery</u>											
Winter Oct. 11 - Dec. 31	9,810		1,345	0	1,345	885					8,925
Winter Jan. 1 - April 14	23,008		1,020	0	1,020	671					22,337
Winter Total	32,818		2,366	0	2,366	1,556					31,262
Spring Hatchery	19,195		5,012	0	5,012	3,298					15,897
Spring Hatchery Access	0		0	0	0	0					0
Spring Terminal	1,313		0	1,230	1,230	1,230			83		83
Spring Total	20,508		5,012	1,230	6,243	4,528					15,980
Summer July 1-11	102,773		2,699	0	2,699	1,776					100,997
Summer 8/20 - 9/30	35,967		1,090	0	1,090	717					35,250
Summer Total	138,740		3,789	0	3,789	2,492					136,248
Annette Troll	0		0	0	0	0					0
Total Troll	192,066		11,166	1,230	12,397	8,577	3,315	505	83		183,489
Sport Total	55,013	49,839	5,375	3,558	8,933	7,094	1,122	717	200	1,616	46,303
Grand Total	270,593		18,313	12,973	31,286	25,021	5,001	1,264	2,700	2,420	243,152

Note: Wild terminal exclusions were: 1,616 from the Situk River in the sport fishery and 804 from the Yakutat area in the setnet fishery.

Appendix B21.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 1999.

Fishery	Common		Alaska Hatchery Contribution						Wild		
	Total Harvest	Property Harvest	General Fisheries	Terminal	Subtotal	Hatchery Add-on	Risk Base	Factor	Terminal Exclusion Base	Terminal Exclusion Harvest	Treaty Harvest
<u>Net Fisheries</u>											
General Drift Gillnet	8,983	5,924	1,948	3,059	5,007	4,547	414	46	0	0	4,436
Annette Drift Gillnet	729	729	248	0	248	190	53	6	0		539
Gillnet Subtotal	9,712	6,653	2,196	3,059	5,255	4,736	467	52	0	0	4,976
Setnet	5,108	2,000	0	0	0	0	0	0	2,000	3,108	2,000
General Seine	17,890	5,961	5	11,929	11,933	11,932	1	0	424		5,958
Annette Seine	10	10	0	0	0	0	0	0	0		10
Seine Subtotal	17,900	5,971	5	11,929	11,933	11,932	1	0	424		5,968
Annette Trap	0	0	0	0	0	0	0	0	0		0
Total Net Fisheries	32,720	14,624	2,201	14,988	17,188	16,669	468	52	2,424	3,108	12,943
<u>Troll Fishery</u>											
Winter Oct. 11 - Dec. 31	13,989		490	0	490	374					13,615
Winter Jan. 1 - April 14	16,988		1,683	0	1,683	1,285					15,703
Winter Total	30,977		2,172	0	2,172	1,659					29,318
Spring Hatchery	18,347		8,766	0	8,766	6,696					11,651
Spring Hatchery Access	0		0	0	0	0					0
Spring Terminal	2,367		0	2,291	2,291	2,291			76		76
Spring Total	20,714		8,766	2,291	11,057	8,988					11,726
Summer July 1-6	78,126		3,007	0	3,007	2,297					75,829
Summer Aug. 18-22	16,397		698	0	698	533					15,864
Summer Total	94,523		3,706	0	3,706	2,831					91,692
Annette Troll	5		0	0	0	0					5
Total Troll	146,219		14,644	2,291	16,935	13,478	3,141	317	76		132,741
Sport Total	72,081	63,658	13,746	7,078	20,824	17,578	1,391	1,855	200	1,345	53,158
Grand Total	251,020		30,591	24,357	54,948	47,725	4,999	2,224	2,700	4,453	198,842

Note: Wild terminal exclusions were: 1,345 from the Situk River in the sport fishery and 3,108 from the Yakutat area in the setnet fishery.

Appendix B22.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 2000.

Fishery	Common		Alaska Hatchery Contribution							Wild		
	Total Harvest	Property Harvest	General			Hatchery Add-on	Risk Base	Factor	Terminal Exclusion	Terminal Exclusion	Treaty	
			Fisheries	Terminal	Subtotal				Base	Harvest	Harvest	
<u>Net Fisheries</u>												
General Drift Gillnet	13,475	5,129	2,865	7,925	10,790	10,219	558	13	2,110	421	2,834	
Annette Drift Gillnet	2,560	2,560	1,112	0	1,112	890	198	23	0		1,670	
Gillnet Subtotal	16,035	7,689	3,977	7,925	11,902	11,110	756	36	2,110	421	4,504	
Setnet	2,460	2,000	0	0	0	0	0	0	2,000	460	2,000	
General Seine	20,703	2,719	369	17,984	18,353	18,279	4	69	364		2,424	
Annette Seine	2,202	2,202	48	0	48	39	9	1	0		2,163	
Seine Subtotal	22,905	4,921	417	17,984	18,401	18,318	13	70	364		4,587	
Annette Trap	0	0	0	0	0	0	0	0	0		0	
Total Net Fisheries	41,400	14,610	4,394	25,909	30,303	29,428	769	106	4,474	881	11,091	
<u>Troll Fishery</u>												
Winter Oct. 11 - Dec. 31	17,494		1,086	0	1,086	870					16,624	
Winter Jan. 1 - April 14	18,561		1,981	0	1,981	1,587					16,974	
Winter Total	36,055		3,067	0	3,067	2,456					33,599	
Spring Hatchery	20,924		11,217	0	11,217	8,983					11,941	
Spring Hatchery Access	0		0	0	0	0					0	
Spring Terminal	7,966		0	7,830	7,830	7,830			136		136	
Spring Total	28,890		11,217	7,830	19,047	16,813					12,077	
Summer July 1-5	50,768		2,608	0	2,608	2,089					48,679	
Summer Aug. 11-12	12,423		853	0	853	683					11,740	
Summer Aug. 23-30	24,895		2,594	0	2,594	2,078					22,817	
Summer Sept. 12-20	5,679		792	0	792	634					5,045	
Summer Total	93,765		6,848	0	6,848	5,484					88,281	
Annette Troll	7		0	0	0	0					7	
Total Troll	158,717		21,133	7,830	28,963	24,754	3,920	289	136		133,963	
Sport Total	63,173	52,603	13,940	8,970	22,910	20,134	312	2,464	4,359	1,600	41,439	
Grand Total	263,290		39,467	42,709	82,176	74,316	5,001	2,859	8,969	2,481	186,493	

Note: Wild terminal exclusions were: 1,321 from the Situk River and 279 from the Stikine River in the sport fishery, 460 from the Yakutat area in the setnet fishery and 421 from the Stikine River in the gillnet fishery.

Appendix B23.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 2001.

Fishery	Common		Alaska Hatchery Contribution						Wild		
	Total Harvest	Property Harvest	General Fisheries	Terminal	Subtotal	Hatchery Add-on	Risk Base	Risk Factor	Terminal Exclusion Base	Terminal Exclusion Harvest	Treaty Harvest
<u>Net Fisheries</u>											
General Drift Gillnet	13,644	6,543	2,615	7,101	9,716	9,244	341	131	1,708	0	4,400
Annette Drift Gillnet	3,447	3,447	2,252	0	2,252	1,845	322	84	0		1,602
Gillnet Subtotal	17,091	9,990	4,867	7,101	11,968	11,089	663	215	1,708	0	6,002
Setnet	2,633	2,002	0	0	0	0	0	0	2,000	631	2,002
General Seine	19,730	5,016	104	14,714	14,818	14,799	18	1	341		4,931
Annette Seine	709	709	173	0	173	142	25	7	0		567
Seine Subtotal	20,439	5,725	278	14,714	14,991	14,941	43	8	341		5,498
Annette Trap	0	0	0	0	0	0	0	0	0		0
Total Net Fisheries	40,163	17,717	5,144	21,815	26,959	26,030	706	223	4,049	631	13,502
<u>Troll Fishery</u>											
Winter Oct. 11 - Dec. 31	11,198		1,105	0	1,105	906					10,292
Winter Jan. 1 - April 14	11,388		1,700	0	1,700	1,393					9,995
Winter Total	22,586		2,806	0	2,806	2,299					20,287
Spring Hatchery	28,250		13,726	0	13,726	11,248					17,002
Spring Hatchery Access	0		0	0	0	0					0
Spring Terminal	7,081		0	6,922	6,922	6,922			159		159
Spring Total	35,331		13,726	6,922	20,648	18,170					17,161
Summer July 1-6	64,854		3,700	0	3,700	3,032					61,822
Summer 8/18 - 9/5	30,509		1,327	0	1,327	1,087					29,422
Summer Total	95,363		5,027	0	5,027	4,119					91,244
Annette Troll	0		0	0	0	0					0
Total Troll	153,280		21,558	6,922	28,480	24,588	3,573	319	159		128,692
Sport Total	72,291	59,686	18,257	11,708	29,965	26,669	720	2,576	4,359	897	44,725
Grand Total	265,734		44,960	40,445	85,405	77,287	5,000	3,118	8,567	1,528	186,919

Note: Wild terminal exclusions were: 194 from the Situk River and 703 from the Stikine River in the sport fishery and 194 from the Yakutat area in the setnet fishery.

Appendix B24.—Total harvests, Alaska hatchery contributions, Treaty harvests and terminal exclusions of Chinook salmon in Southeast Alaska in 2002.

Fishery	Common		Alaska Hatchery Contribution						Wild		
	Total Harvest	Property Harvest	General Fisheries	Terminal	Subtotal	Hatchery Add-on	Risk Base	Risk Factor	Terminal Exclusion Base	Terminal Exclusion Harvest	Treaty Harvest
<u>Net Fisheries</u>											
General Drift Gillnet	10,216	5,882	1,439	4,334	5,773	5,524	228	22	1,708	0	4,692
Annette Drift Gillnet	1,268	1,268	734	0	734	607	109	18	0		661
Gillnet Subtotal	11,484	7,150	2,174	4,334	6,508	6,131	337	40	1,708	0	5,353
Setnet	2,510	2,000	0	0	0	0	0	0	2,000	510	2,000
General Seine	17,145	6,382	953	10,763	11,717	11,551	135	30	322		5,594
Annette Seine	550	550	0	0	0	0	0	0	0		550
Seine Subtotal	17,695	6,932	953	10,763	11,717	11,551	135	30	322		6,144
Annette Trap	0	0	0	0	0	0	0	0	0		0
Total Net Fisheries	31,689	16,082	3,127	15,097	18,224	17,682	472	70	4,030	510	13,497
<u>Troll Fishery</u>											
Winter Oct. 11 - Dec. 31	17,152		743	0	743	614					16,538
Winter Jan. 1 - April 14	12,237		1,215	0	1,215	1,004					11,233
Winter Total	29,389		1,958	0	1,958	1,619					27,770
Spring Hatchery	37,610		17,398	0	17,398	14,381					23,229
Spring Hatchery Access	0		0	0	0	0					0
Spring Terminal	6,040		0	5,862	5,862	5,862			178		178
Spring Total	43,650		17,398	5,862	23,259	20,243					23,407
Summer July 1-18	187,003		4,866	0	4,866	4,023					182,980
Summer 8/12 - 9/2	65,266		1,563	0	1,563	1,292					63,974
Summer Total	252,269		6,429	0	6,429	5,315					246,954
Annette Troll	0		0	0	0	0					0
Total Troll	325,308		25,785	5,862	31,647	27,176	4,084	386	178		298,132
Sport Total	69,537	62,501	20,562	6,309	26,871	23,306	444	3,121	4,359	727	45,504
Grand Total	426,534		49,474	27,268	76,742	68,164	5,000	3,577	8,567	1,237	357,133

Note: Wild terminal exclusions were: 168 from the Situk River and 559 from the Taku River in the sport fishery and 510 from the Yakutat area in the setnet fishery.

APPENDIX C. HISTORY OF THE MANAGEMENT OF THE SPORT FISHERY SINCE 1985

Appendix C1.—History of the management of the sport fishery since 1985.

This section summarizes harvests, quotas, allocations and management of Chinook salmon in the Southeast Alaska sport fishery. Some of the numbers in this section reflect the best estimates using harvest and sampling statistics current during the time period being discussed, and may not reflect the final numbers that are presented in the tables and appendices in this report.

1985-1991

From 1985-1991, the sport harvest of Chinook salmon was limited by a 2-fish bag and possession limit and a 28-inch minimum size limit. There also were spring closures in Taku Inlet near Juneau and in Gray's Pass near Wrangell as well as a year-round closure in a portion of Behm Canal near Ketchikan. Special regulations in upper Lynn Canal were also used to provide protection for Chilkat River stocks, and a management plan for Situk River Chinook salmon was passed by the Alaska Board of Fisheries (BOF or Board) in 1991. Sport fishing for Chinook salmon in freshwater in Southeast Alaska is prohibited except in the Yakutat area and for hatchery returns in other areas of Southeast Alaska (i.e. Blind Slough near Petersburg). From 1983 through May 1989, it was legal for marine anglers to keep undersized (less than 28 inches in length) Chinook salmon that had been adipose-clipped. This regulation was enacted to recover sufficient numbers of coded wire tags when fishery sampling programs were less comprehensive but was repealed because retention of these fish caused biased estimates of hatchery contributions. From 1989 to 1991, increased bag limits (2 fish 28 inches or more in length and 2 fish less than 28 inches in length) were implemented in specific terminal areas in both fresh and marine waters to allow increased harvests of Alaska hatchery stocks.

Monitoring of the sport fisheries in Southeast Alaska was accomplished primarily by creel survey programs that provided inseason and postseason harvest estimates and hatchery contributions by fishery. Estimates of final harvests were obtained in approximately late June of the following year from the Statewide Harvest Survey (SWHS), which is a mail survey sent to a random sample of license holders. Creel surveys were conducted in Juneau and Ketchikan from 1985-1991 and in Petersburg and Wrangell from 1983-1989. In 1986, surveys were initiated in Sitka with support from US/Canada funds, but surveys in Sitka, Petersburg, and Wrangell were discontinued midseason in 1989 when these funds became unavailable. Salmon derbies were sampled for coded wire tags in 1990 in Sitka and in 1991 in Petersburg, Wrangell, and Sitka.

Sport harvests of Chinook salmon were fairly stable from 1985-1988 averaging 24,473 fish (including Alaska hatchery). In 1989, however, sport harvests began a rapid increase due to increases in fishing effort and harvest in outer coastal areas in Sitka and Prince of Wales Island as well as increases in hatchery returns. Total harvests increased from 31,071 in 1989 to 60,492 in 1991. Unfortunately these increases occurred at a time when monitoring was virtually eliminated in the Sitka fishery and CWT sampling in the Petersburg and Wrangell fisheries was also reduced or eliminated (1990). Due to the rapid increase in harvests coupled with a decline in fishery monitoring, the postseason (preliminary) estimate of harvest of 38,200 total Chinook salmon in 1990 was 25% lower than the final estimate of 51,218 from the SWHS (known by fall of 1991). The 1991 SWHS total sport harvest estimate of 60,492 coupled with an Alaska hatchery add-on harvest of 15,348 corresponded to a Treaty harvest of 45,144. This Treaty harvest was approximately the 1985-1998 average Treaty harvest.

1992-1993

Due to the rapid rise in sport harvests from 1989 to 1991, the Alaska Trollers Association submitted a request to the Alaska Board of Fisheries in November 1991 to allocate a fixed percentage of the quota to the troll fleet and thus indirectly establish an allocation for the sport fishery. The BOF subsequently met and assigned an allocation (17% of the all-gear quota after subtracting the net fisheries allocation of 20,000 fish) to the Chinook salmon sport fishery in 1992. The Alaska Board of Fisheries also adopted a management plan that outlined how ADF&G was to manage the marine sport fishery for its allocation and

-continued-

Appendix C1.–Page 2 of 7.

provided regulatory authorities to implement the plan. The regulatory authorities included several options in bag limits, size limits, and gear restrictions to increase or reduce the sport harvest to meet the allocation. The objectives of this plan were to: 1) allow uninterrupted sport fishing in marine waters for Chinook salmon, while not exceeding the allocation and; 2) to minimize regulatory restrictions on unguided anglers, who harvest Chinook salmon at a lower harvest per unit of effort than do guided anglers fishing from charter vessels. Bag limits of 2 Chinook salmon per day, 2 in possession, with a minimum size limit of 28 inches were to remain in effect in Southeast Alaska/Yakutat marine waters until it was projected (either preseason or inseason) that the total harvest would deviate by more than the management range from the inseason management target. The management range was set by regulation at $\pm 7.5\%$ (i.e. $\pm 3,100$ fish for the 1993 allocation of 41,310 fish). The inseason management target was defined as the current year allocation plus or minus any cumulative deviations from past allocations.

In order to implement the management plan, an expanded creel survey program was set up to more extensively monitor the sport fishery providing better inseason and postseason estimates. Surveys in Sitka, Wrangell, and Petersburg were reinstated and a creel survey was initiated in Craig (which was converted to a harvest sampling program in 1993 to provide better stock composition estimates). Coded wire tags were recovered during creel surveys and by voluntary programs at remote lodges scattered throughout the region to estimate the contribution of Alaska hatchery stocks. Time series analysis was also used to make preseason forecasts of sport harvests.

Data from the creel surveys were used to project the total sport harvest of Treaty Chinook salmon on an inseason basis. Harvest and hatchery contribution estimates for the creel survey programs were made every 2 weeks. The biweekly estimates were combined with the following data to project the total harvest of Chinook salmon in Southeast Alaska sport fisheries:

- 1) harvest timing data for the Chinook salmon fisheries from past onsite surveys,
- 2) ratios of past SWHS harvest estimates within a given area to the creel survey estimates for the same area,
- 3) the ratio of the total SWHS harvest, including areas not sampled in onsite programs (Yakutat, Glacier Bay, and Haines/Skagway), to the areas sampled in onsite programs (Ketchikan, Prince of Wales, Petersburg/Wrangell, Sitka, and Juneau).
- 4) comparisons of past hatchery contribution data for surveyed fisheries to current year data as collected.

The most important dates for the inseason harvest projections were approximately June 15, July 1, and July 15. Since the bulk of the Chinook salmon fishery occurs between the middle of May and the middle of July, early season projections are necessary to effectively limit the harvest. Harvest per unit effort (HPUE) for Chinook salmon was also determined every week and compared with past averages.

The management plan was implemented in both 1992 and 1993 to limit sport harvests in Southeast Alaska to the mandated allocation. In 1992, a preseason forecast exceeding the management range was used to justify implementation of a 1-fish bag limit for all anglers and prohibition on retention of Chinook salmon by charter boat operators and crew beginning May 15. These restrictions were subsequently repealed on July 28 when it was determined by inseason monitoring that the sport harvest would not reach the management target. In 1993, an inseason harvest projection exceeding the management range was used to justify implementation of a 1-fish bag limit for all anglers, downrigger ban for all anglers, and prohibition on retention of Chinook salmon by charter boat operators and crew beginning June 17. The downrigger ban was rescinded on August 16, 1993 when it was determined that the management target would not be met. The emergency order reducing the bag limit to one Chinook salmon and banning take by charter operators and crew expired on

-continued-

Appendix C1.—Page 3 of 7.

December 31, 1993. Beginning in 1993, a statewide regulation required most resident and all non-resident anglers 16 years or older to obtain a Chinook salmon tag (stamp) to fish for Chinook salmon.

1994-1996

In early 1994, the Alaska Board of Fisheries again considered the allocation split between the sport and commercial troll fisheries and increased the allocation to the sport fishery from 17% to 18% in 1994, 19% in 1995, and 20% in 1996 of the all-gear quota after subtracting the net fisheries allocation of 20,000 fish. The management plan itself, however, remained essentially unchanged. During 1994-1996, Pacific Salmon Treaty negotiations to arrive at the quota were very protracted and generally were not completed until late June. By this time, as much as 85% of the sport harvest has already been taken, making it very difficult to manage the fishery to achieve the objectives of the management plan.

Creel survey monitoring for 1994-1996 generally continued as during 1992-1993, however, the Petersburg and Wrangell surveys were converted to harvest sampling programs to provide better stock composition estimates. Sampling in the Sitka area was also increased to provide better estimates of harvests and stock contributions.

A preseason forecast for the 1994 season indicated that the sport Treaty harvest would total about 50,000 with a 2-fish bag limit. Based on an expected 263,000 quota, the 18% sport fish allocation plus the estimated shortfall of nearly 3,000 Treaty fish from previous seasons would allocate nearly 47,000 fish to the sport fishery. No inseason actions would have been necessary since 50,000 would have been within the $\pm 7.5\%$ management range. Preseason consultations for a Section 7 Permit under the Endangered Species Act (ESA) were ongoing with National Marine Fisheries Service (NMFS). With the results of the consultations unknown, it was decided to manage conservatively by implementing a 1-fish bag limit and prohibiting retention of Chinook salmon by charter boat operators and crew beginning April 15. The final quota was set in late June at 240,000. The more restrictive regulations were rescinded on July 1 when sport harvests were slower than expected. A 3-fish bag limit was implemented on July 30 but did little to increase harvests. At the end of 1994 the cumulative deviation from 1992-1994 allocations was estimated to be about -6,500 fish. That cumulative 1992-1994 deviation is now estimated to be -7,030 fish.

A preseason forecast for 1995 suggested that about 40,000 Treaty Chinook salmon would be taken with a 2-fish bag limit in place. ESA consultations were again ongoing as the fishery commenced. A quota of 230,000 was proposed and eventually adopted. Based on this quota and an allocation of 19%, the sport allocation of 39,900 matched closely with the preseason forecast and therefore no management actions were taken. Alaska continued managing for its quota until August 17 when commercial Chinook salmon fisheries were closed by court order. An additional harvest of 2,000 Chinook salmon by the sport fishery was allowed. In response to the court order, the bag limit for the sport fishery was reduced to one fish from August 17 through October 3. The postseason sport Treaty harvest was about 34,600 (the SWHS estimated Treaty harvest was 35,496). For practical purposes, the sport carryover was assumed to be lost, as the estimated Treaty harvest of about 175,000 would have resulted in a sport quota of about 29,500. It is unclear to this day, however, as to how to interpret results from this fishing season.

For the 1996 season, Chinook salmon availability was forecast to be similar to 1995, and so it was expected that about 35,000 Treaty Chinook salmon would be taken with a 2-fish bag limit. At the beginning of the season, before the quota was set, a number of scenarios were discussed with all-gear quotas ranging from 120,000 to 180,000. The season began with a 2-fish bag limit. Early season harvests were below normal. By early June the quota still was not finalized but it was known that the quota would be less than the 1995 estimated harvest of 175,000. Therefore on June 15, the bag limit was reduced to one fish and charter boat operators and crews were prohibited from retaining Chinook salmon. The postseason estimated Treaty harvest was about 29,600 Chinook salmon. The 20% sport allocation of the final quota of 140,000-155,000 ranged from 24,000 to 27,000 with a mid-point of 25,500. The sport overage was estimated at the time to be

-continued-

Appendix C1.—Page 4 of 7.

about 4,100 Treaty fish. The final SWHS estimate was 38,975 Treaty Chinook salmon resulting in an overage of 13,475 fish.

In June of 1996, Alaska and the Treaty representatives for the Southern U.S. signed a Letter of Agreement (LOA) for management of Chinook salmon fisheries based primarily on abundance. Using this approach, an initial quota was set based upon a preseason abundance forecast. Based on the harvest rates in the first summer troll opening, believed to be a more reliable indicator of abundance, the quota could be modified in late July. Although this approach was supported by fishery managers, it meant that the final quota would not be known until after most sport harvest had been taken, and therefore any significant adjustments would likely result in the sport fishery not achieving its share of the quota.. The sport management plan needed to be changed to make it more workable under this abundance-based approach.

1997-1999

Concerns with the existing sport management plan were brought to the attention of the Board at their meeting held in early 1997. The Board subsequently revised the management plan and allocation scheme. Once a preseason abundance index and initial quota were obtained, ADF&G staff were directed to estimate the harvest that would be attained under 1-, 2-, and 3-fish bag limits and then implement the bag limit that came closest to obtaining a 20% allocation (based on the PSC preseason abundance index). The adjusted harvest target with this bag limit then became the sport fishery harvest target. Additional management measures (as listed in the previous management plan) would be taken only if the sport harvest deviated more than $\pm 7.5\%$ (about $\pm 3,000$ fish) from the adjusted harvest target. Inseason adjustments to the all-gear Chinook salmon quota based on commercial troll fishery performance had no effect on management of the sport fishery. If the sport fishery took more or less than a 20% allocation of the final all-gear quota, then commercial troll fishery harvests were to be reduced or increased to ensure the overall quota was met. Only the portion of the deviation from the management target greater than or less than a $\pm 7.5\%$ management range was to be carried forward to future years.

The Board also prohibited retention of Chinook salmon by charter vessel operators and crew while chartering (year-round) and also limited the number of lines fished from a vessel engaged in charter activities to equal the number of paying clients. The Board also passed a 4 Chinook salmon (28 inches or more) annual limit for non-resident anglers with a provision that the limit would be increased to 5 if the abundance index was 1.5 or greater. A management plan for Wrangell Narrows/Blind Slough fisheries for returns of Chinook salmon to Crystal Lake hatchery was also implemented.

Creel survey monitoring for 1997-1999 generally continued as during 1994-1996. Estimates of stock contribution were improved by an increase in CWT sampling rates in 1998 when anglers were prohibited by emergency order from heading or filleting Chinook (and coho) salmon prior to landing in ports monitored by creel survey or harvest sampling programs. Sampling rates for CWTs increased in some ports when samplers dedicated to this task were added. In 1998, a mandatory logbook program was implemented for all marine charter vessels.

In 1997, the preseason abundance index was not obtained officially until June 17. At this time, a 1-fish bag limit was imposed to restrict the Treaty harvest to 53,800 Treaty fish. This became the harvest target. The initial 20% allocation from the 277,000 quota was 51,300 Treaty fish. Beginning in 1997 net fisheries were allocated 4.3% of the quota for seine, 7,600 fish for drift gillnet and 1,000 fish for set gillnet. Sport fisheries were allocated 20% of the remaining quota. A 1-fish bag limit was implemented on July 7 and remained in effect through December 31. Subsequently, the quota was increased to a range from 277,000 to 302,000 (a mid-point of 289,500). The postseason (preliminary) Treaty harvest estimate of 56,100 was 2,300 fish above the original harvest target but less than the $\pm 7.5\%$ management range and therefore not carried over to the 1998 fishery. The final 1997 all gear quota was 289,500, the sport allocation was 53,690, the SWHS Treaty harvest was 53,305, and the deviation from the allocation was -385.

-continued-

Appendix C1.–Page 5 of 7.

The 1998 fishery started out with below average sport harvests in the inside fisheries. The preseason abundance index (resulting in a 263,000 fish quota) was not officially announced until June 25. At this time, it was projected that 41,200 Treaty Chinook salmon would be harvested by continuing with a 2-fish bag limit while a 3-fish bag limit would result in a harvest of 41,700 fish, both below the 20% allocation of 48,600. Therefore the harvest target for the season was changed to 41,700, and the bag limit was increased to 3 on July 3. Due to higher than expected August harvests of Chinook salmon in Craig and Sitka, the harvest target was exceeded by more than the management range of 7.5%. Therefore on September 9, the bag limit was again reduced to 1. The postseason Treaty harvest estimate of 47,500 exceeded the harvest target by 5,800 fish. This was 2,700 fish above the upper end of the 7.5% management range (44,800) and needed to be subtracted, prior to setting bag limits and harvest targets, from the initial 20% allocation in 1999. The final 1998 all-gear quota was 260,000, the sport allocation was 48,044, the SWHS Treaty harvest was 46,303, and the deviation from the allocation was -1,741.

In 1999, release of the preseason abundance index was delayed until June 28. In late June, a new Treaty agreement was also signed which resulted in a significant lowering of the Chinook salmon quota for Southeast Alaska at lower levels of abundance indices. A preseason quota of 177,000 resulted in a 20% sport allocation of 32,200, which was reduced to 29,500 after subtraction of the 2,700 fish from the 1998 estimated overage. When the abundance index was received in late June, the sport fishery was projected to take 42,800 Treaty fish by going to a 1-fish bag limit, therefore a 1-fish bag limit was implemented on July 3, and 42,800 became the sport harvest target for 1999. Harvests in the sport fishery were again higher than expected. The 1999 postseason (preliminary) harvest was estimated at 47,400 Treaty fish or 1,400 fish above the upper end of the 7.5% management range (46,000). These 1,400 fish needed to be subtracted from the 2000 allocation. The final 1999 all-gear quota was 184,164, the sport allocation was 33,529, the SWHS Treaty harvest was 53,158, and the deviation from the allocation was 19,629.

Since preseason abundance indices were never obtained before mid-June during 1997-1999, regulation changes made in early July when sport harvests were declining rapidly never had much of an effect on either reducing or increasing harvests. Also, projections of final sport harvests made inseason under different bag limits were somewhat inaccurate and unable to predict postseason harvest estimates within a $\pm 7.5\%$ management range. Since some of the regulatory measures listed in the management plan (i.e. size limit changes) were also not feasible to implement under the new Treaty agreement, it was obvious prior to the Alaska Board of Fisheries meeting in early 2000 that the sport management plan needed to be reworked.

2000

The Alaska Board of Fisheries rewrote the sport management plan at its February 2000 meeting to take into account the 1999 abundance-based Treaty agreement. The 4 objectives of the revised management plan were to: (1) manage the sport fishery to attain a harvest of 20 percent of the annual all-gear harvest ceiling after the commercial net allocation was subtracted; (2) allow uninterrupted sport fishing in marine waters for Chinook salmon, while not exceeding the sport fishery harvest ceiling; (3) minimize regulatory restrictions on resident anglers not fishing from a charter vessel; and (4) provide stability to the sport fishery by eliminating inseason regulatory changes, except when needed for conservation.

Although the 20% allocation to the sport fishery was not changed, the $\pm 7.5\%$ management range for the fishery was eliminated in favor of a plan that set regulations on a preseason basis. Bag limits would be set at either 1 or 2 Chinook salmon depending on the preseason abundance index. Also depending on the preseason abundance index, nonresident anglers would have an annual limit of 2, 3, or 4 Chinook salmon. Bag limits for all anglers and annual limits for nonresidents would be determined prior to May 1 and remain in effect for the entire calendar year. If preseason abundance was extremely low (<1.1), additional fisheries restrictions (such as prohibiting retention of Chinook salmon by nonresidents and by all anglers

-continued-

Appendix C1.—Page 6 of 7.

fishing from charter vessels in August and September) would be implemented preseason to further reduce harvests.

Other regulations passed by the Alaska Board of Fisheries included revision of the regulations for increasing harvests of hatchery Chinook salmon in areas opened by emergency order. Bag limits could now be uniquely set for each terminal area to achieve management objectives. Regulations were also modified so that if returns were adequate, Chinook salmon caught in these areas did not count toward annual limits for nonresident anglers.

Inseason monitoring of the sport fishery in 2000 continued as in 1997-1999. In late July 1999, regional staff were advised that final SWHS estimates for the 1998 fishery were being revised upward although the revisions had not been finalized. Work continued in 2000 on checking, correcting, and updating computer code to incorporate the latest scientific findings to provide better SWHS estimates. By mid-September, 2000, SWHS estimates for 1996-1998 were extensively revised and corrected to reflect this additional work.

In late April 2000, a Chinook salmon preseason abundance index of 1.01 was announced. This index resulted in an all-gear quota of 152,850 fish, of which the 20% sport fish allocation totaled 27,535. Given that preseason abundance was less than 1.1, the newly revised management plan required that bag limits be reduced from 2 and nonresident annual limits be reduced from 4. Therefore, the Chinook salmon bag and possession limit in marine waters of Southeast Alaska was decreased to one fish 28 inches or more in length on May 3, 2000. In addition, the annual limit for nonresident anglers was decreased from 4 to 2. It was projected that these regulatory changes would decrease the sport harvest to 34,100 Treaty Chinook salmon.

Since the 20% allocation of 27,535 would still be exceeded, additional regulations were needed to reduce the harvest from 34,100. Therefore, on June 3, four additional harvest restrictions were imposed:

1. Retention and possession of Chinook salmon was prohibited if more than 4 lines were being fished from a chartered vessel from June 3 through June 30;
2. Nonresident anglers and anglers fishing from a chartered vessel could not retain Chinook salmon on any Wednesday from June 3 through July 31;
3. Nonresident anglers and anglers fishing from a chartered vessel could not retain Chinook salmon from August 1 through September 30; and
4. Nonresident anglers and anglers fishing from a chartered vessel could not retain Chinook salmon within 2 areas of the outside coast around Sitka and the west and south coasts of Prince of Wales Island from July 12 through July 31.

The first 3 restrictions applied to all marine waters in Southeast Alaska, including Yakutat, except for terminal harvest areas established by emergency order to harvest excess Alaska hatchery Chinook salmon. In aggregate, these 4 restrictions were projected to reduce the harvest to the harvest target. Normally, these restrictions would have been placed into effect by May 1; however, implementation was delayed in 2000 because the revised management plan did not officially take effect until late May. The 4 additional restrictive regulations detailed above also did not apply (nor would have applied) in terminal areas, thus providing non-resident and guided anglers opportunities to fish on Wednesdays and with more than 4 lines per vessel.

On June 5, the Alaska Sportfish Council filed for a temporary restraining order (TRO) on implementation of the 4 restrictions on nonresident anglers and anglers fishing from a chartered vessel that went into effect on June 3. The request for a TRO was denied and then a preliminary injunction hearing was held in Juneau on June 14 based on the filing. The motion for a preliminary injunction was also denied.

-continued-

Appendix C1.–Page 7 of 7.

In late June, review of results from the coastwide Chinook salmon model indicated that some of the changes to the model were incorrect. Correction of the straying rates and a recalibration of the model indicated that the revised abundance index for Southeast Alaska in 2000 was 1.14. Since under the revised management plan, an abundance index of 1.1 to 1.2 results in a 1-fish bag limit and 3-fish non-resident annual limit, the 4 restrictions detailed above concerning the charter and non-resident fishery were rescinded on June 27. In addition, the non-resident annual limit for Chinook salmon was increased from 2 to 3. These regulations remained in place for the rest of the year.

The late June revision of the preseason abundance index resulted in a 35,000 fish allocation to the sport fishery. The postseason (preliminary) estimate of the sport Treaty harvest was 39,400, about 4,400 fish above the 20% allocation. The final 2000 all-gear quota was 178,500, the sport allocation was 32,445, the SWHS Treaty harvest was 41,439, and the deviation from the allocation was 8,994.

2001

Since there was an estimated overage of 4,400 fish from the 2000 sport fishery, the non-resident and guided angler bag limit could not be increased from 1 and the annual limit for non-residents could not be increased from 3, no matter what the abundance index was in 2001. Since the preseason abundance index of 1.14 was announced by May 1, the bag limit for all anglers remained at 1 fish and the annual limit for nonresidents remained at 3. Despite the reduced bag limit, harvests remained higher than expected, especially late in the season. An inseason abundance index of 1.10 resulted in an all-gear quota of 178,500 fish and a 32,450 fish allocation to the sport fishery. The postseason (preliminary) estimate of the sport Treaty harvest was 46,500 fish, about 14,000 fish higher than the allocation. The first postseason calibration increased the 2001 abundance index to 1.29 resulting in an all-gear quota of 250,259 Chinook salmon and a 46,180 allocation to the sport fishery. Prior to the start of the 2002 season, estimates showed that the increased AI eliminated the all-gear overage and resulted in an estimated -36,390 fish all-gear deviation from the quota. At that same time the sport fishery still showed a cumulative 1999-2001 overage of 31,433 fish.

After the 2002 season, an error was discovered in the variance calculations used to establish the Alaska hatchery add-on that changed the 1999-2001 Treaty harvests for all gear types. The new calculations reduced the cumulative 1999-2001 sport fishery overage by 4,264 fish to 27,169 and increased the all-gear cumulative deviation to -40,669. The final 2001 SWHS sport Treaty harvest was 44,725 resulting in a -1,454 fish deviation from the 2001 sport fishery allocation.

2002

The preseason AI was set at 1.74 for an all-gear quota of 356,500 fish. The sport fishery allocation at this quota was 66,510 fish. The estimated cumulative sport fishery overage did not allow for an increase in the non-resident bag and possession limits, so the 2002 sport fishery regulations were established at a 2-fish resident daily bag limit and non-resident 1-fish bag and possession limit and a 3 fish annual limit. The preliminary postseason 2002 sport fishery Treaty harvest was estimated at 58,400 or 8,110 fish less than the 20% allocation. In addition, after the season, an error was discovered in the variance calculations used to establish the Alaska hatchery add-on that changed the 1999-2001 Treaty harvests for all gear types. The new calculations reduced the cumulative 1999-2001 sport fishery overage by 4,264 fish to 27,169. The first postseason calibration increased the 2002 abundance index to 1.82 for an all-gear quota of 371,993 Chinook salmon and a sport allocation of 69,468. The final SWHS Treaty harvest was 45,504 and the deviation from the allocation was -23,964. The increased AI further increased the cumulative 1999-2002 all-gear deviation to -55,469 and reduced the cumulative 1999-2002 sport fishery deviation to 3,205.

**APPENDIX D. MAJOR REGULATORY ACTIONS TAKEN IN THE
MANAGEMENT OF THE SOUTHEAST ALASKA TROLL FISHERY
FOR CHINOOK SALMON OVER THE PAST 80 YEARS**

Appendix D1.—Major regulatory actions taken in the management of the Southeast Alaska troll fishery for Chinook salmon over the past 80 years.

Year	Major Regulatory Actions Associated with Management of Southeast Alaska Troll Fishery
Prior to 1924	Congressional Act in 1906 provided for 36 hour per week closure in all waters of Alaska, but very little enforcement was conducted.
Prior to 1950	Troll fishery was unlimited by area restrictions and continued year round. Trollers were limited to 4 lines in Territorial waters. In 1941, a minimum size of 6 lbs. dressed weight for Chinook salmon was implemented. In 1941, Burroughs Bay was closed to trolling from 8/16-10/5.
1950	“Outside” waters were closed from 10/31 to 3/15. Portions of northern Lynn Canal were closed from 5/31 to 6/25. Northern Behm Canal was closed from 5/1 to 7/15.
1951	Chinook salmon size limit was modified to either 6 lbs. dressed weight or 26 inches in fork length.
1958	Additional area restrictions were imposed with the closing of portions of Stephens Passage.
1959	Trolling was prohibited in Stikine Straight south of Vank Island during November and December.
1960	Trollers were limited to 4 fishing lines and use of single hooks in State waters and “outside” waters were closed from 11/1 to 4/15.
1962	A portion of northern Behm Canal was closed to trolling. Trolling was limited to one day per week in Districts 11A and 11B from late April to mid-June.
1965	The District 8 troll season was open only during days the gill net fishery was open during the gill net season.
1970	Trolling in Yakutat Bay was restricted to the same days as the set net fishery was open.
1971	Trolling was limited to one day per week in District 111, District 112 north of Point Couverden and District 115C from 5/1 to the 3 rd Sunday of June.
1973	Yakutat Bay was opened to winter troll fishing.
1974	All State waters north and west of Cape Suckling were closed to troll fishing.
1975	Power trolling was placed under limited entry with 940 permits allowed.
1976	District 11, District 12 north of Point Couverden, and Districts 15B and 15C were closed to trolling from 4/16 to 6/14. District 11A was closed to trolling from 4/16 to 8/14.
1977	Federal waters of the Fishery Conservation Zone west of Cape Suckling were closed to troll fishing. The Chinook salmon minimum size length was increased to 28 inches. Waters in east Behm Canal and in Boca de Quadra were closed to troll fishing.
1978	The eastern Sumner Strait portions of District 6 and adjoining District 8 were closed to trolling from 4/16 to 6/14. The northern Clarence Strait portion of District 6 and adjoining District 8 were closed to trolling from 4/16 to 8/14. District 8 was closed to trolling from 4/16 to the third Monday in June. The southern Frederick Sound portion of District 10 and adjoining District 8 was closed to trolling from 4/16 to 6/14.
1979	A 8-day “on” and 6-day “off” fishing period was implemented for the troll fishery in Districts 12 north of Point Hepburn and in Districts 14, 15A and 15C. Districts 11A and 11B were closed to trolling all year. “Outside” waters were closed to hand trolling.
1980	First of the annual management targets was established for the harvest of Chinook salmon in Southeast Alaska (SEAK) by the Alaska Board of Fisheries (BOF) and the North Pacific Fishery Management Council (NPFMC); a guideline harvest level (range) of 286,000 to 320,000 Chinook salmon in the commercial fishery. Limited entry for hand trolling was implemented, 2,150 permits were issued, 1,300 of them as non-transferable permits. The number of lines allowed to be fished in the Federal Conservation Zone was limited to 4 lines per vessel south of Cape Spencer and 6 lines per vessel between Cape Spencer and Cape Suckling with a limit of 6 operational gurdies. A 10-day Chinook salmon non-retention period for the troll fishery from 6/15 to 6/24 was implemented and a 9/21 to 9/30 closure of the troll fishery was implemented.
1981	Guideline harvest level (range) of 272,000 to 285,000 Chinook salmon was established by BOF. The NPFMC however set the guideline level (range) at 243,000 to 286,000 Chinook salmon. The troll fishery was closed from 4/15 to 5/15 for conservation of mature Chinook salmon spawners of local origin. A 6/25 to 7/5 Chinook salmon non-retention period was implemented. A troll fishery closure from 8/10 to 8/19 was implemented. A 9/4 to 9/12 Chinook salmon non-retention period was implemented. The Federal Conservation Zone was closed from 8/10 to 9/20 except in Yakutat Bay. With the exception of Yakutat Bay, the troll fishery was closed from 9/21 to 9/30. A winter Chinook salmon troll fishing season was established from 10/1 to 4/14, a summer troll fishing season was established from 4/15 to 9/20. Portions of District 116 were included in waters open to the winter troll fishery. Hand troll gear was limited to 2 gurdies or 4 fishing poles and the hand troll closure in “outside” waters was repealed.
1982	BOF and the NPFMC set a guideline harvest level of 257,000 Chinook salmon, with a range from 243,000 to 286,000 Chinook salmon (including an estimated 1,500 Chinook salmon produced by Alaskan hatcheries). The troll fishery was closed from 5/15 to 6/14. A Chinook salmon non-retention period from 6/7 to 6/17 and from 7/29 to 9/19 was implemented. Undersized Chinook salmon with adipose finclips were allowed to be retained by troll fishermen so long as the heads were submitted to ADFG.

-continued-

Appendix D1.—Page 2 of 4.

Year	Major Regulatory Actions Associated with Management of Southeast Alaska Troll Fishery
1983	Guideline harvest level (range) was again set at 243,000 to 286,000 Chinook salmon for the commercial fishery, including the winter troll harvest from 10/1/83 to 4/14/84 by the BOF and the NPFMC. The troll fishery was closed from 4/15 to 6/5 and from 7/1 to 7/10. The troll fishery was closed to Chinook salmon retention from 7/30 to 9/20.
1984	Guideline harvest level of 243,000 to 272,000 Chinook salmon was set by the BOF and the NPFMC for the commercial fishery, including the winter troll harvest. The troll fishery was closed from 5/15 to 6/5 and from 7/1 to 7/10. The troll fishery was closed to the retention of Chinook salmon from 7/30 to 9/20.
1985	The U.S./Canada Pacific Salmon Treaty (PST) set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups at 263,000 fish. The summer season definition was extended to 9/30. The troll fishery was closed from 4/15 to 6/3 and from 6/13 to 6/30. Troll fishery Chinook salmon non-retention was implemented from 7/23 to 8/24 and from 8/27 to 9/20.
1986	The PST set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 263,000 fish plus an Alaska hatchery add-on. The troll fishery was closed from 4/15 to 6/20. Selected areas were closed from 7/9 to the end of the season to reduce Chinook salmon harvest rates. Remaining areas were closed to Chinook salmon retention from 7/16 to 8/20. Troll fishery Chinook salmon non-retention was implemented from 8/27 to 8/31 and from 9/10 to 9/20. Experimental troll fisheries were allowed in Wrangell Narrows and near Little Port Walter from 6/2 to 6/3, from 6/9 to 6/10, and from 6/16 to 6/17 to harvest hatchery Chinook salmon. The 8-day “on” and 6-day “off” fishing periods in District 14 and waters of District 12 south of Point Couverden were repealed. The prior regulation allowing the retention of under-sized Chinook salmon with missing adipose fins was repealed.
1987	The PST set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 263,000 fish plus an Alaska hatchery add-on. The general summer troll fishery was closed from 4/15 to 6/20. Selected areas were closed from 7/4 to the end of the season to reduce Chinook salmon harvest rates. Remaining areas were closed to Chinook salmon retention from 7/13 to 8/2 and from 8/13 to 9/20. Experimental troll fisheries near 4 Alaskan hatcheries were allowed during June prior to the 6/20 summer season opening.
1988	The Pacific Salmon Treaty set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 263,000 fish plus an Alaska hatchery add-on. The general summer troll fishery was closed from 4/15 to 6/30. Chinook salmon non-retention was implemented from 7/12 to 9/20. Experimental troll fisheries near 5 Alaskan hatcheries were allowed during June and terminal troll fisheries were operated continuously during June in Wrangell Narrows and Carroll Inlet.
1989	The PST set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 263,000 fish plus an Alaska hatchery add-on. The general summer troll fishery was closed from 4/15 to 6/30. Chinook salmon non-retention was implemented from 7/13 to 9/20. Experimental troll fisheries in 9 areas near Alaskan hatcheries were allowed during June (6/12 to 6/13 and 6/26 to 6/28) and terminal troll fisheries were operated during June in Wrangell Narrows (6/12) and Carroll Inlet (6/11 to 6/29). Hatchery access troll fisheries were opened in most of the “inside” waters for two 3-day periods in June during weeks without experimental troll fisheries.
1990	The PST set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 302,000 fish plus an Alaska hatchery add-on. The general summer troll fishery was closed from 4/15 to 6/30. Chinook salmon non-retention was implemented from 7/23 to 8/22 and from 8/25 to 9/20. Experimental and hatchery access troll fisheries near Alaskan hatcheries were allowed during June. Additional terminal areas were opened to troll fishing in Earl West Cove. A quota of 30,000 Chinook salmon excluding Alaska hatchery add-on fish was implemented for the spring troll fisheries. A portion of District 111A, the backside of Douglas Island was opened to trolling during the winter season (10/1 to 4/15).
1991	The PST set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 273,000 fish plus an Alaska hatchery add-on that was projected at 57,800 Chinook salmon. The general summer troll fishery was closed from 4/15 to 6/30. Chinook salmon non-retention was implemented from 7/8 to 9/20. Experimental and hatchery access troll fisheries near Alaskan hatcheries were allowed during June. A quota of 40,000 Chinook salmon excluding Alaska hatchery add-on fish was implemented for the spring troll fisheries.
1992	The PST set a ceiling for the harvest of Chinook salmon in Southeast Alaska by all gear groups as 227,400 fish (the BOF required the Alaska Department of Fish and Game (ADF&G) to reduce the estimated 1987-1991 PSC overage from 45,600 to 10,000 fish; therefore the original ceiling of 263,000 was reduced by 35,600 to 227,400 fish) plus an Alaska hatchery add-on that was projected at 69,000 Chinook salmon. The BOF allocated 83% of the ceiling to the troll fishery after accounting for a 20,000 Chinook salmon allocation for commercial net fisheries. Winter and spring troll fisheries occurred similar to 1991. The general summer troll fishery was closed from April 15 to June 30. The general summer season opening occurred from 7/1 to 7/6. The troll fishery was closed to Chinook salmon retention from 7/7 to 8/20 and areas of high Chinook salmon abundance were closed to fishing through 9/20. The troll fishery reopened to Chinook salmon retention from 8/21 to 8/25 and from 9/12 to 9/20. From 8/26-9/11 Chinook salmon non-retention was implemented. Snake River fall Chinook salmon listed as “threatened” under the U.S. Endangered Species Act (ESA).

-continued-

Appendix D1.—Page 3 of 4.

Year	Major Regulatory Actions Associated with Management of Southeast Alaska Troll Fishery
1993	The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 263,000 fish plus the Alaska hatchery add-on estimated to be 35,900 fish after receiving a Section 7 ESA consultation from the National Marine Fisheries Service. The PST Annex concerning Chinook salmon harvest ceilings expired in 1992 and an annex was not successfully negotiated by the parties to the PST until 1999. The start of the winter troll fishery was delayed until 10/11 and operated until 4/14. As a result of the ESA consultation, the spring hatchery access fishery did not occur. Experimental and terminal fisheries did occur. The general summer season opening was delayed until 7/1 and remained open until 7/6. The troll fishery was closed from 7/7 to 7/11. The troll fishery was reopened on 7/12 with Chinook salmon non-retention and with areas of high Chinook salmon abundance closed to fishing. The troll fishery reopened to Chinook salmon retention from 9/12 to 9/20.
1994	The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 240,000 fish plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service. The BOF allocated 82% of the ceiling to the troll fishery after accounting for a 20,000 Chinook salmon allocation for commercial net fisheries. The BOF allocated 45,000 of the troll allocation to the winter troll fishery and 70% of remaining troll harvest to a summer fishery with an initial opening beginning July 1. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/8. From 7/8 to 9/20, areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/8 to 8/28. Trollers were allowed to retain Chinook salmon from 8/29 to 9/2. Non-retention of Chinook salmon in the troll fishery was implemented from 9/3 to 9/20.
1995	The ADF&G initially managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 230,000 fish plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service. Part way through the general summer season, a temporary restraining order issued by the U.S. District Court, Western District of Washington resulted in the fishery being closed well before reaching the target harvest level. The BOF allocated 81% of the ceiling to the troll fishery after accounting for a 20,000 Chinook salmon allocation for commercial net fisheries. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/10. From 7/11 to 9/20, areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/11 to 7/30. Trollers were allowed to retain Chinook salmon from 7/31 to 8/5. Non-retention of Chinook salmon in the troll fishery was implemented from 8/6 to 9/20.
1996	The ADF&G managed the Chinook salmon fisheries in Southeast Alaska for a harvest of 140,000 to 155,000 fish (the midpoint of the range is 147,500 fish) plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and upon the State of Alaska signing a 6/24/96 U.S. Letter of agreement with southern U.S. representatives of the U.S.-Canada Treaty regarding an abundance-based approach to managing Chinook salmon fisheries in Southeast Alaska (U.S. LOA). The BOF allocated 80% of the ceiling to the troll fishery after accounting for a 20,000 Chinook salmon allocation for commercial net fisheries. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and 6/30 the end of June. The general summer troll fishery opened on 7/1 and closed on 7/10. From 7/11 to 9/20, areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/11 to 7/30. Trollers were allowed to retain Chinook salmon from 8/19 to 8/20. Non-retention of Chinook salmon in the troll fishery was implemented from 8/21 to 9/20.
1997	The ADF&G managed the Chinook salmon fisheries in Southeast Alaska for a harvest of 277,000 to 302,000 fish (the midpoint of the range is 289,500 fish) plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and applying measures as called for in the 1996 U.S. LOA. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/7. After 7/7 areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/8 to 8/17. Chinook salmon retention was allowed by trollers from 8/18 to 8/24 and again from 8/30-9/5. Non-retention of Chinook salmon in the troll fishery was implemented from 8/25 to 8/29 and again from 9/6-9/23.
1998	The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 260,000 fish plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and applying measures as called for in the 1996 U.S. LOA. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and end of June. The general summer troll fishery opened on 7/1 and closed on 7/11. After 7/11 areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/11 to 8/19. Trollers were allowed to retain Chinook salmon from 8/20 to 9/30.

-continued-

Appendix D1.—Page 4 of 4.

Year	Major Regulatory Actions Associated with Management of Southeast Alaska Troll Fishery
1999	The 1999 Agreement of the PST was signed in June of 1999. The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 195,600 fish based on a preliminary Abundance Index (AI) (subsequently changed to 192,750; AI=1.15, partway through the season), plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and applying measures as called for in the 1996 U.S. LOA . In 2000, the first postseason calibration of the Chinook Technical Committee (CTC) Chinook Model revised the quota for the 1999 season to 184,164, AI=1.12. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/6. After 7/6 areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/7 to 8/17. Trollers were allowed to retain Chinook salmon from 8/18 to 8/22. Non-retention of Chinook salmon in the troll fishery was implemented from 8/23 to 9/30.
2000	The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 137,700 fish based on a preliminary AI (subsequently changed to 189,900; AI=1.14 in June), plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and applying measures as called for in the 1996 U.S. LOA. Later the first postseason calibration of the CTC Chinook Model revised the quota to 178,500, AI=1.10. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/5. After 7/5 areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/6 to 8/10. Chinook salmon retention was allowed by trollers from 8/11 to 8/12, from 8/23-8/30, and again from 9/12-9/20. Non-retention of Chinook salmon in the troll fishery was implemented from 8/13 to 8/22 and again from 8/31-9/11.
2001	The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 189,900 fish based on an AI=1.14, plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and applying measures as called for in the 1996 U.S. LOA. Later the first postseason calibration of the CTC Chinook Model revised the quota to 250,259, AI=1.29. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/6. After 7/6 areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/7 to 8/17. Trollers were allowed to retain Chinook salmon from 8/18 to 9/5. Non-retention of Chinook salmon in the troll fishery was implemented from 9/6-9/30.
2002	The ADF&G managed the Chinook salmon harvest in Southeast Alaska for a ceiling of 356,500 fish based on an AI=1.74, plus the Alaska hatchery add-on after receiving a Section 7 ESA consultation from the National Marine Fisheries Service and applying measures as called for in the 1996 U.S. LOA. Later the first postseason calibration of the CTC Chinook Model revised the quota to 371,933, AI=1.82. The winter troll fishery took place from 10/11 to 4/14. Spring troll fisheries consisting of terminal and experimental fisheries were conducted between early May and the end of June. The general summer troll fishery opened on 7/1 and closed on 7/17. After 7/17 areas of high Chinook salmon abundance were closed to troll fishing. Chinook salmon non-retention in the troll fishery was implemented from 7/18 to 8/11. Trollers were allowed to retain Chinook salmon from 8/12 to 9/2. Non-retention of Chinook salmon in the troll fishery was implemented from 9/3-9/30. Chilkat Inlet was closed to commercial trolling from 7/1 to 7/15 to protect mature Chinook salmon returning to the Chilkat River.