Chignik Salmon Purse Seine Fishery: Summary Data on Issues Related to the 2002 Cooperative Fishery

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State of Alaska
Commercial Fisheries Entry Commission
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Table of Contents

1.0 Introduction 1

2.0 Distribution of Historic Harvests in the Chignik Purse Seine Fishery 3

2.1 Distribution of Harvest by Decile Group, 1992-2001 3
2.1a Sockeye Harvest by Decile Group, 1992-2001 4
2.1b Salmon (All Species) Harvest by Decile Group, 1992-2001 8

2.2 Distribution of 2002 Participants by Decile Group, 1997-2001 13
2.2a Sockeye 13
2.2b All Salmon Species 15

2.3. Distribution of 2002 Open Fishery Participants by Quintile Group, 1994-2002 ... 17
2.3a Sockeye 17
2.3b All Salmon Species 21

3.0 Variability of Relative Rankings Across Years 24

3.1 Frequency of the Range of Participants' Decile Rankings 24
3.1a Sockeye 25
3.1b All Salmon Species 25

3.2 Frequency of the Mean Absolute Deviation of Participants' Decile Rankings 26
3.2a Sockeye 27
3.2b All Salmon Species 28

4.0 Participation in Other Fisheries 29

4.1 Frequency of Participation (as CFEC Permit Holders) in Other Fisheries by Chignik Participants 29

5.0 Permit Transfers and Estimated Permit Values 31

List of Tables

Table 2.1a Distribution of Commercial Sockeye Harvest by Decile Group, 1992-2001 ... 5
Table 2.1b Distribution of Commercial Salmon (All Species) Harvest by Decile Group, 1992-2001 ... 9
Table 2.2a(1) 2002 Cooperative Members: Distribution by Sockeye Harvest Decile Group, 1997-2001 ... 13
Table 2.2a(2) 2002 Open Fishery Participants: Distribution by Sockeye Harvest Decile Group, 1997-2001 ... 14
Table 2.2b(1) 2002 Cooperative Members: Distribution by Salmon (All Species) Harvest Decile Group, 1997-2001 ... 15
Table 2.2b(2) 2002 Open Fishery Participants: Distribution by Salmon (All Species) Harvest Decile Group, 1997-2001 ... 16
Table 2.3a Distribution of 2002 Open Fishery Participants by Sockeye Harvest Quintile Group, 1994-2002 ... 18
Table 2.3b Distribution of 2002 Open Fishery Participants by Salmon (All Species) Harvest Quintile Group, 1994-2002 ... 22
Table 3.1a Frequency of the Range of Participants' Sockeye Harvest Decile Rankings, 1997-2001 ... 25
Table 3.1b Frequency of the Range of Participants' Salmon (All Species) Harvest Decile Rankings, 1997-2001 ... 26
Table 3.2a Frequency of the Mean Absolute Deviation of Participants' Sockeye Harvest Decile Rankings, 1997-2001 ... 27
Table 3.2b Frequency of the Mean Absolute Deviation of Participants' Salmon (All Species) Harvest Decile Rankings, 1997-2001 ... 28
Table 4.1 Counts of Chignik Permit Holders with Harvests in Other Fisheries During the Chignik Salmon Purse Seine Fishery Season, 1992-2002 ... 30
Table 5.0 Transfer Activity in the Chignik Salmon Seine Fishery, 1992-2002 ... 31

1.0 Introduction

In early 2002, the Alaska Board of Fisheries (Board) passed regulations that provided a means for Commercial Fisheries Entry Commission (CFEC) permit holders in the Chignik salmon purse seine fishery to form a cooperative and fish in a cooperative fishery under specified conditions.[1] The regulations provided an allocation to the cooperative in the form of a percentage of the Chignik Area commercial sockeye harvestable surplus.

The purpose of these regulations was to reduce the resources devoted to the "race for the fish." By providing a specific allocation to a cooperative, the cooperative should be able to reduce the number of vessels, crew, and the cost of the harvest thereby improving the efficiency and the profitability of the fishery. The allocation to the cooperative also provided an opportunity to improve ex-vessel prices by slowing down the fishery and providing time to improve product handling and quality.

The Chignik Seafood Producers Alliance formed as a cooperative in 2002 in accordance with the new regulations. Both a cooperative fishery and an "open fishery" occurred in 2002. Seventy-seven permit holders joined the cooperative. By regulation, each member of the cooperative received nine-tenths of one percent (0.9%) of the commercial sockeye harvestable surplus, which amounted to a total allocation to the cooperative of 69.3% of the harvest.

Permit holders who did not join the cooperative could continue to fish in an "open fishery." The open fishery was allocated the residual percentage of the overall commercial sockeye harvest (30.7%), but permit holders in the open fishery were competing to capture the fish. Twenty-two permit holders opted to participate in the open fishery for an average implicit allocation of 1.4% per participant in the open fishery. One permit holder did not join the cooperative and also opted not to fish in 2002. The Alaska Department of Fish & Game (ADF&G) managed the fishery to achieve the designated allocations to both the cooperative fishery and the open fishery.

The Board has received proposals to modify regulations related to the Chignik fishery. ADF&G asked CFEC to provide information on some of the issues that have arisen concerning the 2002 cooperative.

Section 2.0 of this report provides summary reports on the distribution of historic harvests in the Chignik salmon purse seine fishery. The purpose of this section is to examine the historic harvest performance of those who joined the cooperative and those who opted to fish in the open fishery. The report also examines historic shares of the harvest to see if 2002 participants in the open fishery did better or worse than normal. One issue facing the Board is whether or not the allocations to the cooperative fishery and to the open fishery were reasonable. In this section, separate "sockeye only" and "all salmon species" tables are presented.

[1] See 5 AAC 15.359.

Section 3.0 of this report provides summary data on the variability of the relative ranking of individuals' harvests across years. Separate tables within this section first present variability based on harvests of sockeye only, then variability based on harvests of all salmon species.

Section 4.0 provides information on participation in other fisheries by Chignik salmon purse seine permit holders during the Chignik season. Activities during 2002 are compared with previous seasons.

Section 5.0 provides information on the permanent and emergency transfer of Chignik salmon purse seine permits over time. The section also provides information on estimated market values of those permits through time.

2.0 Distribution of Historic Harvests in the Chignik Purse Seine Fishery

The tables in this section attempt to help answer the following questions:

- What types of fishermen joined the 2002 cooperative?
- What types of fishermen participated in the 2002 open fishery?
- Do the harvest shares of individual participants change substantially across years?
- Did the participants in the 2002 open fishery receive a larger or smaller share of the total harvest than they normally received in years prior to the cooperative fishery?

Prior to the formation of the cooperative, some anticipated that highliners would be more likely to stay in the open fishery and fishermen who usually had a relatively small share of the harvest would be more likely to join the cooperative. Following the 2002 season, questions have arisen as to whether or not participants in the 2002 open fishery in Chignik did better or worse than they would have normally done as a percentage of the overall harvest. The summary tables in this section provide some information on these questions.

The tables in this report examine two types of harvest shares. One set of tables examines the total harvest and harvest shares of sockeye salmon only. A second set of tables examines the total harvest and harvest shares of all salmon species.

2.1 Distribution of Harvest by Decile Group, 1992-2001

Section 2.1 examines the total harvest in the Chignik salmon purse seine fishery over the 1992 through 2001 time period.[2] This is the 10-year period that immediately precedes the 2002 season.[3] The tables examine the distribution of harvests of 2002 cooperative members and 2002 participants in the open fishery during years prior to the cooperative fishery.

In each year, participants were ranked in ascending order by total pounds harvested. The participants in each year were then separated into ten groups of approximately equal size.[4] These "decile groups" were numbered from 1 to 10, where 1 was the group with the lowest average harvest and 10 was the group with the highest average harvest in the year. These decile group classifications can be used to compare historic participation of the 2002 cooperative members to that of 2002 open fishery participants across multiple years.

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[2] The allocation to the cooperative and open fisheries was for sockeye salmon. This report contains tables comparing harvest shares for both sockeye salmon and all salmon species.

[3] Some "community harvests" during 2001 and 1998 were excluded from consideration in these reports. According to the Chignik Seiners Association (CSA), the only harvest that occurred during June 2001 was a "community harvest" during a strike. The small number of participants in the community harvest were not participating in a competitive fishery. The proceeds from the harvests were donated to CSA to cover costs and the excess was shared among permit holders. A similar situation occurred in 1998, and the small "community harvest" prior to June 28th in that year has been excluded from this report. Thus the totals in these reports for 1998 and 2001 may not agree with other CFEC reports on the Chignik fishery.

[4] The groups were determined using the "Proc Rank" procedure in the SAS statistical software package.

Section 2.1 is divided into two parts. Part "a" examines the distribution of the commercial sockeye salmon harvest by decile groups over the time period. Part "b" examines the distribution of the total harvest of all salmon species over the time period.

2.1a Sockeye Harvest by Decile Group, 1992-2001

Table 2.1(a) provides data on the total pounds of sockeye harvested, the number of participants, and the average pounds of sockeye caught per participant for each of the ten decile groups during each year. The table also provides the average pounds of sockeye per participant within each decile group as a percentage of the total sockeye pounds harvested in the fishery for the year. For example, in 2001 the average number of sockeye pounds harvested per participant in decile group 10 (the group with the highest sockeye pounds) represents 1.91% of the total sockeye pounds harvested for the year. Over the entire time period, the average pounds harvested by participants in the top decile group ranged from 1.75% of the total sockeye pounds harvested in 1996 to 2.05% of the total sockeye pounds harvested in 1998.

Table 2.1(a) also includes counts by decile group of the number of participants who were members of the 2002 cooperative and counts by decile group of the number of participants who participated in the 2002 open fishery.[5] Because of permanent transfer of permits and years when some permit holders did not participate, the counts of 2002 participants who participated in a specific year tend to be smaller the farther one goes back in time. For example, in 1992 only 53 members of the 2002 cooperative and only 17 participants in the 2002 open fishery were active participants.

[5] Both permanent transfers and emergency transfers occur in the Chignik salmon purse seine fishery. As can be seen in Section 5.0, the number of permanent transfers is small. However, transfers do raise a question about how to treat permits that have transferred in the analysis.

For purposes of this report, a participant was considered to be a unique permit serial number and current permit holder combination. Thus if an emergency transfer recipient fished the permit, those landings were attributed to the current holder of the permit. As a result, in these reports, a "participant" could only change if the permanent holder of the permit changed. In two cases, a permanent transfer occurred mid-season and both holders made landings on the permit. In those cases, the landings made by each of the permit holders during the season of the transfer were attributed to the transfer recipient.

Table 2.1a Sockeye
Distribution of Commercial Sockeye Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total sockeye pounds	Average sockeye pounds per participant	Avg. sockeye lbs per participant (as pct of total sockeye lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
2001	10	9	1,663,807	184,867	1.91 %	4	5.8 %	5	23.8 %
	9	9	1,364,831	151,648	1.57 %	4	5.8 %	5	23.8 %
	8	9	1,223,697	135,966	1.41 %	6	8.7 %	3	14.3 %
	7	10	1,250,228	125,023	1.29 %	9	13.0 %	1	4.8 %
	6	9	1,010,784	112,309	1.16 %	9	13.0 %	0	0.0 %
	5	9	851,318	94,591	0.98 %	8	11.6 %	1	4.8 %
	4	10	835,139	83,514	0.86 %	6	8.7 %	4	19.1 %
	3	9	653,706	72,634	0.75 %	7	10.1 %	1	4.8 %
	2	9	515,401	57,267	0.59 %	8	11.6 %	1	4.8 %
	1	9	293,706	32,634	0.34 %	8	11.6 %	0	0.0 %
		92	9,662,617	105,028	1.09 %	69	100.0 %	21	100.0 %
2000	10	10	2,524,990	252,499	1.86 %	3	4.1 %	7	33.3 %
	9	10	1,970,611	197,061	1.45 %	7	9.6 %	1	4.8 %
	8	10	1,763,505	176,351	1.30 %	7	9.6 %	3	14.3 %
	7	10	1,588,590	158,859	1.17 %	9	12.3 %	1	4.8 %
	6	10	1,337,737	133,774	0.99 %	6	8.2 %	4	19.1 %
	5	10	1,207,670	120,767	0.89 %	7	9.6 %	1	4.8 %
	4	10	1,090,321	109,032	0.80 %	7	9.6 %	3	14.3 %
	3	10	900,778	90,078	0.66 %	10	13.7 %	0	0.0 %
	2	10	749,767	74,977	0.55 %	8	11.0 %	1	4.8 %
	1	9	443,465	49,274	0.36 %	9	12.3 %	0	0.0 %
		99	13,577,434	137,146	1.01 %	73	100.0 %	21	100.0 %
1999	10	9	3,733,498	414,833	2.02 %	5	7.6 %	4	19.1 %
	9	9	2,970,647	330,072	1.61 %	4	6.1 %	5	23.8 %
	8	9	2,557,636	284,182	1.38 %	7	10.6 %	2	9.5 %
	7	9	2,277,517	253,057	1.23 %	8	12.1 %	1	4.8 %
	6	9	2,059,955	228,884	1.11 %	5	7.6 %	2	9.5 %
	5	9	1,876,404	208,489	1.02 %	7	10.6 %	1	4.8 %
	4	9	1,715,182	190,576	0.93 %	6	9.1 %	3	14.3 %
	3	9	1,406,369	156,263	0.76 %	6	9.1 %	3	14.3 %
	2	9	1,120,645	124,516	0.61 %	9	13.6 %	0	0.0 %
	1	9	809,984	89,998	0.44 %	9	13.6 %	0	0.0 %
		90	20,527,837	228,087	1.11 %	66	100.0 %	21	100.0 %

Table 2.1a Sockeye, continued
Distribution of Commercial Sockeye Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total sockeye pounds	Average sockeye pounds per participant	Avg. sockeye lbs per participant (as pct of total sockeye lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
1998	10	8	1,039,817	129,977	2.05 %	2	3.5 %	6	30.0 %
	9	9	955,134	106,126	1.68 %	6	10.3 %	3	15.0 %
	8	8	765,684	95,711	1.51 %	6	10.3 %	1	5.0 %
	7	9	770,036	85,560	1.35 %	6	10.3 %	2	10.0 %
	6	9	699,845	77,761	1.23 %	8	13.8 %	1	5.0 %
	5	8	561,223	70,153	1.11 %	6	10.3 %	1	5.0 %
	4	9	557,808	61,979	0.98 %	6	10.3 %	2	10.0 %
	3	8	422,861	52,858	0.83 %	6	10.3 %	2	10.0 %
	2	9	391,408	43,490	0.69 %	7	12.1 %	1	5.0 %
	1	8	166,538	20,817	0.33 %	5	8.6 %	1	5.0 %
		85	6,330,354	74,475	1.18 %	58	100.0 %	20	100.0 %
1997	10	9	806,840	89,649	1.87 %	4	6.2 %	4	20.0 %
	9	10	712,485	71,249	1.49 %	5	7.7 %	3	15.0 %
	8	10	618,376	61,838	1.29 %	6	9.2 %	3	15.0 %
	7	10	560,159	56,016	1.17 %	7	10.8 %	2	10.0 %
	6	10	499,605	49,961	1.04 %	8	12.3 %	1	5.0 %
	5	10	446,584	44,658	0.93 %	8	12.3 %	2	10.0 %
	4	10	395,202	39,520	0.83 %	7	10.8 %	2	10.0 %
	3	10	330,527	33,053	0.69 %	7	10.8 %	0	0.0 %
	2	10	268,926	26,893	0.56 %	8	12.3 %	2	10.0 %
	1	9	144,011	16,001	0.33 %	5	7.7 %	1	5.0 %
		98	4,782,715	48,803	1.02 %	65	100.0 %	20	100.0 %
1996	10	10	2,607,445	260,745	1.75 %	1	1.6 %	6	30.0 %
	9	10	2,172,318	217,232	1.46 %	8	13.1 %	1	5.0 %
	8	10	1,871,805	187,181	1.26 %	6	9.8 %	2	10.0 %
	7	10	1,658,708	165,871	1.12 %	4	6.6 %	3	15.0 %
	6	10	1,489,933	148,993	1.00 %	6	9.8 %	2	10.0 %
	5	10	1,327,050	132,705	0.89 %	8	13.1 %	1	5.0 %
	4	10	1,175,605	117,561	0.79 %	9	14.8 %	0	0.0 %
	3	10	1,049,884	104,988	0.71 %	6	9.8 %	2	10.0 %
	2	10	932,482	93,248	0.63 %	7	11.5 %	2	10.0 %
	1	10	581,004	58,100	0.39 %	6	9.8 %	1	5.0 %
		100	14,866,234	148,662	1.00 %	61	100.0 %	20	100.0 %

Table 2.1a Sockeye, continued
Distribution of Commercial Sockeye Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total sockeye pounds	Average sockeye pounds per participant	Avg. sockeye lbs per participant (as pct of total sockeye lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
1995	10	10	2,151,777	215,178	1.88 %	5	8.5 %	4	20.0 %
	9	10	1,682,220	168,222	1.47 %	6	10.2 %	3	15.0 %
	8	10	1,459,382	145,938	1.27 %	5	8.5 %	3	15.0 %
	7	10	1,326,554	132,655	1.16 %	6	10.2 %	2	10.0 %
	6	10	1,163,601	116,360	1.01 %	6	10.2 %	2	10.0 %
	5	10	1,038,730	103,873	0.91 %	8	13.6 %	1	5.0 %
	4	10	853,414	85,341	0.74 %	6	10.2 %	1	5.0 %
	3	10	737,367	73,737	0.64 %	4	6.8 %	3	15.0 %
	2	10	620,017	62,002	0.54 %	6	10.2 %	0	0.0 %
	1	10	431,585	43,159	0.38 %	7	11.9 %	1	5.0 %
		100	11,464,647	114,646	1.00 %	59	100.0 %	20	100.0 %
1994	10	10	1,892,822	189,282	1.88 %	5	8.8 %	4	20.0 %
	9	10	1,387,842	138,784	1.38 %	5	8.8 %	4	20.0 %
	8	10	1,225,912	122,591	1.22 %	7	12.3 %	2	10.0 %
	7	10	1,104,854	110,485	1.10 %	6	10.5 %	3	15.0 %
	6	10	1,030,370	103,037	1.02 %	6	10.5 %	1	5.0 %
	5	10	960,227	96,023	0.95 %	5	8.8 %	1	5.0 %
	4	10	822,972	82,297	0.82 %	8	14.0 %	1	5.0 %
	3	10	701,802	70,180	0.70 %	5	8.8 %	4	20.0 %
	2	10	586,001	58,600	0.58 %	7	12.3 %	0	0.0 %
	1	9	373,080	41,453	0.41 %	3	5.3 %	0	0.0 %
		99	10,085,882	101,878	1.01 %	57	100.0 %	20	100.0 %
1993	10	10	1,797,879	179,788	1.76 %	6	10.5 %	3	16.7 %
	9	10	1,393,172	139,317	1.36 %	8	14.0 %	2	11.1 %
	8	10	1,238,979	123,898	1.21 %	7	12.3 %	1	5.6 %
	7	11	1,224,013	111,274	1.09 %	3	5.3 %	4	22.2 %
	6	10	1,020,618	102,062	1.00 %	7	12.3 %	2	11.1 %
	5	10	909,467	90,947	0.89 %	6	10.5 %	2	11.1 %
	4	11	873,128	79,375	0.78 %	6	10.5 %	1	5.6 %
	3	10	711,004	71,100	0.70 %	5	8.8 %	1	5.6 %
	2	10	608,781	60,878	0.60 %	5	8.8 %	1	5.6 %
	1	10	451,360	45,136	0.44 %	4	7.0 %	1	5.6 %
		102	10,228,401	100,278	0.98 %	57	100.0 %	18	100.0 %

Table 2.1a Sockeye, continued
Distribution of Commercial Sockeye Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total sockeye pounds	Average sockeye pounds per participant	Avg. sockeye lbs per participant (as pct of total sockeye lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
1992	10	10	1,634,481	163,448	1.97%	3	5.7%	5	29.4%
	9	10	1,124,853	112,485	1.36%	7	13.2%	0	0.0%
	8	10	966,837	96,684	1.17%	5	9.4%	3	17.7%
	7	10	871,896	87,190	1.05%	7	13.2%	1	5.9%
	6	11	883,328	80,303	0.97%	4	7.6%	4	23.5%
	5	10	728,665	72,867	0.88%	7	13.2%	0	0.0%
	4	10	645,694	64,569	0.78%	7	13.2%	1	5.9%
	3	10	567,519	56,752	0.68%	4	7.6%	1	5.9%
	2	10	491,709	49,171	0.59%	3	5.7%	1	5.9%
	1	10	377,594	37,759	0.46%	6	11.3%	1	5.9%
		101	8,292,576	82,105	0.99%	53	100.0%	17	100.0%

2.1b Salmon (All Species) Harvest by Decile Group, 1992-2001

Table 2.1(b) provides data on the total pounds harvested of all salmon species, the number of participants, and the average pounds caught per participant for each of the ten decile groups during each year. The table also provides the average pounds per participant within each decile group as a percentage of the total salmon pounds harvested in the fishery for the year. For example, in 2001 the average number of pounds harvested per participant in decile group 10 (the group with the highest pounds) represents 2.79% of the total pounds harvested for the year. Over the entire time period, the average pounds harvested by participants in the top decile group ranged from 1.93% of the total pounds harvested in 2000 to 3.24% of the total pounds harvested in 1998.

Table 2.1(b) also includes counts by decile group of the number of participants who were members of the 2002 cooperative and counts by decile of the number of participants who participated in the 2002 open fishery.[6] Permanent transfer of permits and years when some 2002 permit holders did not participate can explain smaller counts of 2002 participants the farther one goes back in time.

[6] See footnote 4 for the definition of "participant" used in this report.

Table 2.1b All Salmon Species

Distribution of Commercial Salmon (All Species) Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total salmon pounds	Average salmon pounds per participant	Avg. salmon lbs per participant (as percent of total salmon lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
2001	10	9	4,118,554	457,617	2.79 %	5	7.3 %	4	19.1 %
	9	9	2,694,690	299,410	1.83 %	6	8.7 %	3	14.3 %
	8	9	2,165,622	240,625	1.47 %	9	13.0 %	0	0.0 %
	7	10	1,816,467	181,647	1.11 %	6	8.7 %	4	19.1 %
	6	9	1,375,166	152,796	0.93 %	7	10.1 %	2	9.5 %
	5	9	1,225,517	136,169	0.83 %	6	8.7 %	3	14.3 %
	4	10	1,150,256	115,026	0.70 %	10	14.5 %	0	0.0 %
	3	9	785,960	87,329	0.53 %	4	5.8 %	5	23.8 %
	2	9	675,578	75,064	0.46 %	8	11.6 %	0	0.0 %
	1	9	388,022	43,114	0.26 %	8	11.6 %	0	0.0 %
		92	16,395,832	178,216	1.09 %	69	100.0 %	21	100.0 %
2000	10	10	3,234,213	323,421	1.93 %	5	6.9 %	4	19.1 %
	9	10	2,459,960	245,996	1.47 %	5	6.9 %	4	19.1 %
	8	10	2,113,134	211,313	1.26 %	8	11.0 %	1	4.8 %
	7	10	1,922,413	192,241	1.15 %	9	12.3 %	1	4.8 %
	6	10	1,783,094	178,309	1.06 %	7	9.6 %	3	14.3 %
	5	10	1,494,712	149,471	0.89 %	8	11.0 %	2	9.5 %
	4	10	1,262,033	126,203	0.75 %	5	6.9 %	3	14.3 %
	3	10	1,101,823	110,182	0.66 %	7	9.6 %	3	14.3 %
	2	10	882,264	88,226	0.53 %	10	13.7 %	0	0.0 %
	1	9	518,750	57,639	0.34 %	9	12.3 %	0	0.0 %
		99	16,772,396	169,418	1.01 %	73	100.0 %	21	100.0 %
1999	10	9	6,088,465	676,496	2.50 %	3	4.6 %	5	23.8 %
	9	9	3,984,910	442,768	1.63 %	8	12.1 %	0	0.0 %
	8	9	3,483,373	387,041	1.43 %	6	9.1 %	3	14.3 %
	7	9	2,906,247	322,916	1.19 %	6	9.1 %	3	14.3 %
	6	9	2,557,559	284,173	1.05 %	7	10.6 %	1	4.8 %
	5	9	2,182,711	242,523	0.89 %	6	9.1 %	3	14.3 %
	4	9	1,929,163	214,351	0.79 %	6	9.1 %	3	14.3 %
	3	9	1,716,262	190,696	0.70 %	8	12.1 %	1	4.8 %
	2	9	1,309,270	145,474	0.54 %	7	10.6 %	2	9.5 %
	1	9	953,771	105,975	0.39 %	9	13.6 %	0	0.0 %
		90	27,111,731	301,241	1.11 %	66	100.0 %	21	100.0 %

Table 2.1b All Salmon Species, continued
Distribution of Commercial Salmon (All Species) Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total salmon pounds	Average salmon pounds per participant	Avg. salmon lbs per participant (as percent of total salmon lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
1998	10	8	2,838,686	354,836	3.24 %	4	6.9 %	3	15.0 %
	9	9	1,981,309	220,145	2.01 %	7	12.1 %	2	10.0 %
	8	8	1,389,067	173,633	1.59 %	5	8.6 %	2	10.0 %
	7	9	1,249,519	138,835	1.27 %	7	12.1 %	2	10.0 %
	6	9	965,084	107,232	0.98 %	5	8.6 %	3	15.0 %
	5	8	728,607	91,076	0.83 %	5	8.6 %	3	15.0 %
	4	9	662,134	73,570	0.67 %	7	12.1 %	1	5.0 %
	3	8	508,446	63,556	0.58 %	6	10.3 %	2	10.0 %
	2	9	426,339	47,371	0.43 %	7	12.1 %	1	5.0 %
	1	8	196,684	24,586	0.22 %	5	8.6 %	1	5.0 %
		85	10,945,875	128,775	1.18 %	58	100.0 %	20	100.0 %
1997	10	9	2,249,048	249,894	2.61 %	3	4.6 %	2	10.0 %
	9	10	1,737,310	173,731	1.82 %	8	12.3 %	2	10.0 %
	8	10	1,412,165	141,217	1.48 %	6	9.2 %	3	15.0 %
	7	10	1,097,848	109,785	1.15 %	8	12.3 %	2	10.0 %
	6	10	823,351	82,335	0.86 %	8	12.3 %	2	10.0 %
	5	10	689,355	68,936	0.72 %	7	10.8 %	2	10.0 %
	4	10	585,855	58,586	0.61 %	5	7.7 %	4	20.0 %
	3	10	450,256	45,026	0.47 %	7	10.8 %	0	0.0 %
	2	10	334,029	33,403	0.35 %	8	12.3 %	1	5.0 %
	1	9	188,414	20,935	0.22 %	5	7.7 %	2	10.0 %
		98	9,567,631	97,629	1.02 %	65	100.0 %	20	100.0 %
1996	10	10	3,858,531	385,853	2.18 %	3	4.9 %	5	25.0 %
	9	10	2,566,022	256,602	1.45 %	6	9.8 %	2	10.0 %
	8	10	2,219,180	221,918	1.25 %	7	11.5 %	1	5.0 %
	7	10	1,905,547	190,555	1.07 %	5	8.2 %	3	15.0 %
	6	10	1,682,371	168,237	0.95 %	6	9.8 %	2	10.0 %
	5	10	1,508,930	150,893	0.85 %	5	8.2 %	2	10.0 %
	4	10	1,277,290	127,729	0.72 %	10	16.4 %	0	0.0 %
	3	10	1,132,321	113,232	0.64 %	5	8.2 %	3	15.0 %
	2	10	962,852	96,285	0.54 %	8	13.1 %	0	0.0 %
	1	10	617,798	61,780	0.35 %	6	9.8 %	2	10.0 %
		100	17,730,842	177,308	1.00 %	61	100.0 %	20	100.0 %

Table 2.1b All Salmon Species, continued
Distribution of Commercial Salmon (All Species) Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total salmon pounds	Average salmon pounds per participant	Avg. salmon lbs per participant (as percent of total salmon lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
1995	10	10	6,116,051	611,605	2.57 %	3	5.1 %	5	25.0 %
	9	10	3,921,176	392,118	1.65 %	5	8.5 %	3	15.0 %
	8	10	2,994,282	299,428	1.26 %	8	13.6 %	1	5.0 %
	7	10	2,562,229	256,223	1.08 %	6	10.2 %	0	0.0 %
	6	10	2,070,360	207,036	0.87 %	9	15.3 %	1	5.0 %
	5	10	1,744,561	174,456	0.73 %	4	6.8 %	2	10.0 %
	4	10	1,549,191	154,919	0.65 %	6	10.2 %	3	15.0 %
	3	10	1,262,484	126,248	0.53 %	7	11.9 %	1	5.0 %
	2	10	958,027	95,803	0.40 %	5	8.5 %	3	15.0 %
	1	10	619,139	61,914	0.26 %	6	10.2 %	1	5.0 %
		100	23,797,500	237,975	1.00 %	59	100.0 %	20	100.0 %
1994	10	10	3,128,036	312,804	2.06 %	4	7.0 %	5	25.0 %
	9	10	2,243,732	224,373	1.47 %	4	7.0 %	3	15.0 %
	8	10	1,926,531	192,653	1.27 %	8	14.0 %	1	5.0 %
	7	10	1,666,361	166,636	1.10 %	8	14.0 %	0	0.0 %
	6	10	1,468,277	146,828	0.96 %	7	12.3 %	2	10.0 %
	5	10	1,327,743	132,774	0.87 %	4	7.0 %	4	20.0 %
	4	10	1,222,558	122,256	0.80 %	5	8.8 %	2	10.0 %
	3	10	1,007,921	100,792	0.66 %	6	10.5 %	2	10.0 %
	2	10	759,833	75,983	0.50 %	7	12.3 %	1	5.0 %
	1	9	465,345	51,705	0.34 %	4	7.0 %	0	0.0 %
		99	15,216,337	153,700	1.01 %	57	100.0 %	20	100.0 %
1993	10	10	4,081,669	408,167	2.27 %	6	10.5 %	3	16.7 %
	9	10	2,662,950	266,295	1.48 %	6	10.5 %	4	22.2 %
	8	10	2,367,364	236,736	1.32 %	5	8.8 %	1	5.6 %
	7	11	2,195,387	199,581	1.11 %	5	8.8 %	2	11.1 %
	6	10	1,654,118	165,412	0.92 %	7	12.3 %	0	0.0 %
	5	10	1,420,551	142,055	0.79 %	7	12.3 %	3	16.7 %
	4	11	1,313,025	119,366	0.66 %	5	8.8 %	2	11.1 %
	3	10	913,707	91,371	0.51 %	7	12.3 %	1	5.6 %
	2	10	782,944	78,294	0.44 %	2	3.5 %	2	11.1 %
	1	10	574,099	57,410	0.32 %	7	12.3 %		0.0 %
		102	17,965,814	176,135	0.98 %	57	100.0 %	18	100.0 %

Table 2.1b All Salmon Species, continued

Distribution of Commercial Salmon (All Species) Harvest by Decile Group, 1992-2001

Year	Decile rank	Number of participants	Total salmon pounds	Average salmon pounds per participant	Avg. salmon lbs per participant (as percent of total salmon lbs)	2002 co-op fishery members		2002 open fishery participants	
						Number of participants	Percent per decile	Number of participants	Percent per decile
1992	10	10	3,972,994	397,299	2.18 %	4	7.6 %	4	23.5 %
	9	10	2,722,508	272,251	1.50 %	6	11.3 %	3	17.7 %
	8	10	2,455,247	245,525	1.35 %	6	11.3 %	1	5.9 %
	7	10	2,002,496	200,250	1.10 %	7	13.2 %	1	5.9 %
	6	11	1,802,209	163,837	0.90 %	4	7.6 %	2	11.8 %
	5	10	1,431,019	143,102	0.79 %	6	11.3 %	2	11.8 %
	4	10	1,268,896	126,890	0.70 %	4	7.6 %		0.0 %
	3	10	1,029,608	102,961	0.57 %	6	11.3 %	2	11.8 %
	2	10	877,646	87,765	0.48 %	6	11.3 %	1	5.9 %
	1	10	621,527	62,153	0.34 %	4	7.6 %	1	5.9 %
		101	18,184,150	180,041	0.99 %	53	100.0 %	17	100.0 %

2.2 Distribution of 2002 Participants by Decile Group, 1997-2001

This section summarizes the 1997-2001 harvest records of 2002 participants in the Chignik salmon fishery by year and decile group. These data are a more succinct summary of selected data from Table 2.1(a) and Table 2.1(b) in Section 2.1, across a shorter five-year period.

Part 2.2(a) of this section provides summary data for sockeye harvests only. Part 2.2(b) provides summary data on the commercial harvest of all salmon species. In both parts, one table is provided for 2002 cooperative members and a second table is provided for participants in the 2002 open fishery for comparative purposes.

2.2a Sockeye

Table 2.2a(1) provides summary data on the distribution of the commercial sockeye harvest of 2002 cooperative members over the 1997-2001 time period. The table shows the number of participants in each sockeye harvest decile group in each year and the percentage they represent of all the 2002 cooperative members who participated in that year.

Table 2.2a(2) provides summary data on the distribution of the commercial sockeye harvest of participants in the 2002 open fishery over the 1997-2001 time period. The table shows the number of participants in each decile group in each year and the percentage they represent of all 2002 open fishery participants who harvested sockeye in the year.

Table 2.2a(1) Sockeye
2002 Cooperative Members: Distribution by Sockeye Harvest Decile Group, 1997-2001

	2001		2000		1999		1998		1997	
Decile rank	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile
10	4	5.8 %	3	4.1 %	5	7.6 %	2	3.5 %	4	6.2 %
9	4	5.8 %	7	9.6 %	4	6.1 %	6	10.3 %	5	7.7 %
8	6	8.7 %	7	9.6 %	7	10.6 %	6	10.3 %	6	9.2 %
7	9	13.0 %	9	12.3 %	8	12.1 %	6	10.3 %	7	10.8 %
6	9	13.0 %	6	8.2 %	5	7.6 %	8	13.8 %	8	12.3 %
5	8	11.6 %	7	9.6 %	7	10.6 %	6	10.3 %	8	12.3 %
4	6	8.7 %	7	9.6 %	6	9.1 %	6	10.3 %	7	10.8 %
3	7	10.1 %	10	13.7 %	6	9.1 %	6	10.3 %	7	10.8 %
2	8	11.6 %	8	11.0 %	9	13.6 %	7	12.1 %	8	12.3 %
1	8	11.6 %	9	12.3 %	9	13.6 %	5	8.6 %	5	7.7 %
	69	100.0 %	73	100.0 %	66	100.0 %	58	100.0 %	65	100.0 %

Table 2.2a(2) Sockeye
2002 Open Fishery Participants: Distribution by Sockeye Harvest Decile Group, 1997-2001

	2001		2000		1999		1998		1997	
Decile rank	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile
10	5	23.8 %	7	33.3 %	4	19.1 %	6	30.0 %	4	20.0 %
9	5	23.8 %	1	4.8 %	5	23.8 %	3	15.0 %	3	15.0 %
8	3	14.3 %	3	14.3 %	2	9.5 %	1	5.0 %	3	15.0 %
7	1	4.8 %	1	4.8 %	1	4.8 %	2	10.0 %	2	10.0 %
6	0	0.0 %	4	19.1 %	2	9.5 %	1	5.0 %	1	5.0 %
5	1	4.8 %	1	4.8 %	1	4.8 %	1	5.0 %	2	10.0 %
4	4	19.1 %	3	14.3 %	3	14.3 %	2	10.0 %	2	10.0 %
3	1	4.8 %	0	0.0 %	3	14.3 %	2	10.0 %	0	0.0 %
2	1	4.8 %	1	4.8 %	0	0.0 %	1	5.0 %	2	10.0 %
1	0	0.0 %	0	0.0 %	0	0.0 %	1	5.0 %	1	5.0 %
	21	100.0 %	21	100.0 %	21	100.0 %	20	100.0 %	20	100.0 %

The data in Tables 2.2a(1) and 2.2a(2) indicate that members of the 2002 cooperative are historically more evenly distributed across all sockeye harvest decile groups than are participants in the 2002 open fishery. These tables show the percentage of participating 2002 cooperative members who have historically fallen into the top two decile groups (which included participants with the highest number of pounds in each year) tends to be lower than the percentage of the participants in the 2002 open fishery who fall into the top two decile groups. In contrast, the percentage of participating 2002 cooperative members who have fallen historically into the lowest two decile groups tends to be higher than the percentage of the participants in the 2002 open fishery who fall into the two lowest decile groups.

For example, in 1999 there were some members from the 2002 cooperative who appear in all ten sockeye decile harvest groups. Of 2002 cooperative members who participated during 1999, the percentage that fell into specific decile harvest groups ranged from 6.1% to 13.6%. Only 13.6% of these participants fell into the highest two decile groups (groups 10 and 9) while 27.2% of these participants fell into the lowest two decile groups (groups 1 and 2).

In contrast, participants in the 2002 open fishery who had landings in 1999 only appear in the top 8 of the sockeye decile harvest groups during 1999. Of all the 2002 open fishery participants who had harvests in 1999, the percentage that fell into specific decile groups ranged from 0.0% to 23.8%. Approximately 42.9% of these participants fell into the highest two decile groups (groups 10 and 9) while 0.0% of these participants fell into the lowest two decile groups (groups 1 and 2).

2.2b All Salmon Species

Table 2.2b(1) provides summary data on the distribution of the total commercial salmon (all species) harvest of 2002 cooperative members over the 1997-2001 time period. The table shows the number of participants in each salmon (all species) decile group in each year and the percentage they represent of all the 2002 cooperative members who harvested salmon in that year.

Table 2.2b(2) provides summary data on the distribution of the commercial salmon (all species) harvest of participants in the 2002 open fishery over the 1997-2001 time period. The table shows the number of participants in each decile group in each year and the percentage they represent of all 2002 open fishery participants who harvested salmon in the year.

Table 2.2b(1) All Salmon Species
2002 Cooperative Members: Distribution by Salmon (All Species) Harvest Decile Group, 1997-2001

	2001		2000		1999		1998		1997	
Decile rank	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile	2002 co-op members	Percent of 2002 co-op members per decile
10	5	7.3 %	5	6.9 %	3	4.6 %	4	6.9 %	3	4.6 %
9	6	8.7 %	5	6.9 %	8	12.1 %	7	12.1 %	8	12.3 %
8	9	13.0 %	8	11.0 %	6	9.1 %	5	8.6 %	6	9.2 %
7	6	8.7 %	9	12.3 %	6	9.1 %	7	12.1 %	8	12.3 %
6	7	10.1 %	7	9.6 %	7	10.6 %	5	8.6 %	8	12.3 %
5	6	8.7 %	8	11.0 %	6	9.1 %	5	8.6 %	7	10.8 %
4	10	14.5 %	5	6.9 %	6	9.1 %	7	12.1 %	5	7.7 %
3	4	5.8 %	7	9.6 %	8	12.1 %	6	10.3 %	7	10.8 %
2	8	11.6 %	10	13.7 %	7	10.6 %	7	12.1 %	8	12.3 %
1	8	11.6 %	9	12.3 %	9	13.6 %	5	8.6 %	5	7.7 %
	69	100.0 %	73	100.0 %	66	100.0 %	58	100.0 %	65	100.0 %

Table 2.2b(2) All Salmon Species
2002 Open Fishery Participants: Distribution by Salmon (All Species) Harvest Decile Group, 1997-2001

	2001		2000		1999		1998		1997	
Decile rank	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile	2002 open fishery participants	Pct of 2002 open fishery participants per decile
10	4	19.1 %	4	19.1 %	5	23.8 %	3	15.0 %	2	10.0 %
9	3	14.3 %	4	19.1 %	0	0.0 %	2	10.0 %	2	10.0 %
8	0	0.0 %	1	4.8 %	3	14.3 %	2	10.0 %	3	15.0 %
7	4	19.1 %	1	4.8 %	3	14.3 %	2	10.0 %	2	10.0 %
6	2	9.5 %	3	14.3 %	1	4.8 %	3	15.0 %	2	10.0 %
5	3	14.3 %	2	9.5 %	3	14.3 %	3	15.0 %	2	10.0 %
4	0	0.0 %	3	14.3 %	3	14.3 %	1	5.0 %	4	20.0 %
3	5	23.8 %	3	14.3 %	1	4.8 %	2	10.0 %	0	0.0 %
2	0	0.0 %	0	0.0 %	2	9.5 %	1	5.0 %	1	5.0 %
1	0	0.0 %	0	0.0 %	0	0.0 %	1	5.0 %	2	10.0 %
	21	100.0 %	21	100.0 %	21	100.0 %	20	100.0 %	20	100.0 %

The distribution of participants in these “all salmon” decile groups is roughly similar to the distribution of participants in the sockeye decile groups shown in the previous subsection. For example, in 1999 some members from the 2002 cooperative appear in all ten salmon decile harvest groups. Of 2002 cooperative members who participated during 1999, the percentage that fell into specific decile harvest groups ranged from 4.6% to 13.6%. While 16.7% of these participants fell into the highest two decile groups (groups 10 and 9), 24.2% of these participants fell into the lowest two decile groups (groups 1 and 2).

In contrast, participants in the 2002 open fishery who had landings in 1999 only appear in the top nine all salmon decile harvest groups in 1999. Of all the 2002 open fishery participants who had harvests in 1999, the percentage that fell into specific decile groups ranged from 0.0% to 23.8%. In the same year, 23.8% of these participants fell into the highest two decile groups (groups 10 and 9) while only 9.5% of these participants fell into the lowest two decile groups (groups 1 and 2).

2.3. Distribution of 2002 Open Fishery Participants by Quintile Group, 1994-2002

One question that arose about the 2002 fishery is whether the allocation to the persons in the open fishery made them better or worse off than they were historically with respect to their percentage of the total harvest. Tables 2.3(a) and 2.3(b) present information to address that question.

Tables 2.3(a) and 2.3(b) provide summary data on the 1994-2002 harvests of the 22 participants in the 2002 open fishery. Table 2.3(a) includes sockeye harvests only. Table 2.3(b) includes the commercial harvests of all salmon species.

For purposes of these tables, the harvests of participants in the 2002 open fishery were sorted in ascending order in each year, and the 2002 open fishery participants in each year were divided into five roughly equal groups (called quintile groups or quintile ranks herein). The harvest data were then summarized for each quintile group.[7] In each year, group 5 contains the participants with the highest harvest totals and group 1 contains the participants with the lowest harvest totals.

2.3a Sockeye

Table 2.3(a) contains data on the total pounds of sockeye harvested by participants in the 2002 open fishery in each year over the 1994-2002 time period. The table also contains data on the total and average pounds harvested by each quintile group in each year. The average sockeye pounds per participant in the quintile group and the average sockeye pounds across all 2002 open fishery participants are shown as a percentage of all sockeye pounds harvested in the fishery in each year. These percentages are compared across years in a summary chart shown at the top of page 18.

In 2002, sockeye harvest by each of the 22 participants in the 2002 Chignik salmon seine fishery averaged 1.40% of the total sockeye pounds harvested in the fishery. Over the 1994-2001 time period, harvests by individual participants from the 2002 open fishery averaged from 1.19% of the total sockeye pounds harvested in the fishery in 1996 to 1.42% of the total sockeye pounds harvested in the fishery in 1998. Thus relative to the total sockeye pounds harvested in the fishery, participants in the 2002 open fishery did slightly better on average in 2002 than they did over the 1994-2001 time period, with the exception of 1998.[8]

In 2002, harvests by the top quintile (group 5) of participants in the 2002 open fishery averaged 2.43% of the sockeye pounds harvested in the Chignik salmon purse seine

[7] Quintile groups were selected since CFEC wanted at least four participants in each group in order to maintain the confidentiality of individual harvest data. Since there were 22 participants in the 2002 open fishery, dividing these participants into five roughly equal groups meant that there would be at least four in each group in most years. Data prior to 1994 are not reported since there were fewer than 20 of these participants prior to 1994.

[8] Recall that the same participants may not fall into the same quintile group in each year.

fishery. Over the 1994-2001 time period, participants from the 2002 open fishery who fell into the top quintile for a year, averaged from 1.85% of the total pounds landed in fishery in 1996 to 2.21% of the total pounds harvested in the fishery in 1999. Thus relative to the total sockeye pounds harvested in the fishery, the top quintile of participants in the 2002 open fishery did better on average in 2002 than they did over the entire 1994-2001 time period.

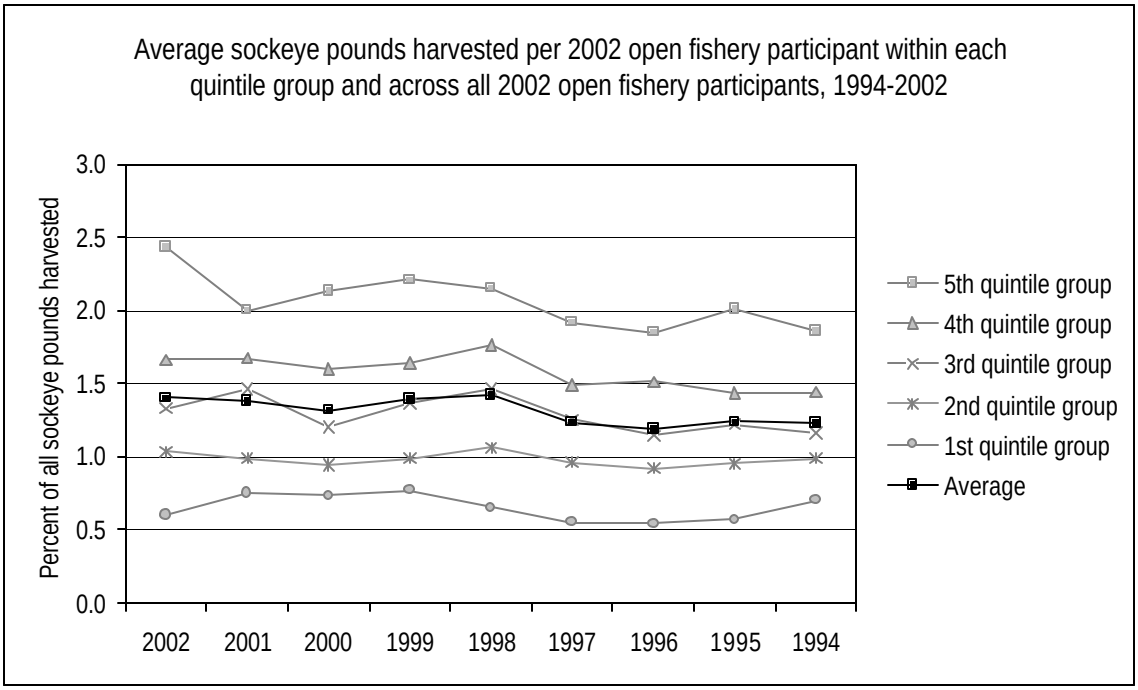


Table 2.3a Sockeye
Distribution of 2002 Open Fishery Participants by Sockeye Harvest Quintile Group, 1994-2002

Year	Total sockeye pounds landed by all participants	Quintile rank	No. of 2002 open fishery participants with landings	Total sockeye pounds landed by 2002 open fishery participants	Average sockeye pounds per 2002 open fishery participant	Avg. lbs per 2002 open fishery participant (pct of total pounds)
2002	7,176,262	5	4	696,587	174,147	2.43 %
		4	5	595,942	119,188	1.66 %
		3	4	381,146	95,287	1.33 %
		2	5	368,817	73,763	1.03 %
		1	4	171,356	42,839	0.60 %
			22	2,213,848	100,629	1.40 %

Table 2.3a Sockeye, continued
Distribution of 2002 Open Fishery Participants by Sockeye Harvest Quintile Group, 1994-2002

Year	Total sockeye pounds landed by all participants	Quintile rank	No. of 2002 open fishery participants with landings	Total sockeye pounds landed by 2002 open fishery participants	Average sockeye pounds per 2002 open fishery participant	Avg. lbs per 2002 open fishery participant (as pct of total pounds)
2001	9,662,617	5	4	773,564	193,391	2.00 %
		4	4	644,769	161,192	1.67 %
		3	5	704,069	140,814	1.46 %
		2	4	384,154	96,039	0.99 %
		1	4	289,949	72,487	0.75 %
			21	2,796,505	133,167	1.38 %
2000	13,577,434	5	4	1,157,119	289,280	2.13 %
		4	4	867,477	216,869	1.60 %
		3	5	816,490	163,298	1.20 %
		2	4	511,443	127,861	0.94 %
		1	4	398,195	99,549	0.73 %
			21	3,750,724	178,606	1.32 %
1999	20,527,837	5	4	1,814,598	453,650	2.21 %
		4	4	1,343,536	335,884	1.64 %
		3	5	1,399,554	279,911	1.36 %
		2	4	810,097	202,524	0.99 %
		1	4	634,158	158,540	0.77 %
			21	6,001,943	285,807	1.39 %
1998	6,330,354	5	4	545,610	136,403	2.15 %
		4	4	446,104	111,526	1.76 %
		3	4	370,507	92,627	1.46 %
		2	4	268,105	67,026	1.06 %
		1	4	164,677	41,169	0.65 %
			20	1,795,003	89,750	1.42 %
1997	4,782,715	5	4	368,130	92,033	1.92 %
		4	4	285,297	71,324	1.49 %
		3	4	239,877	59,969	1.25 %
		2	4	183,072	45,768	0.96 %
		1	4	105,144	26,286	0.55 %
			20	1,181,520	59,076	1.24 %

Table 2.3a Sockeye, continued
Distribution of 2002 Open Fishery Participants by Sockeye Harvest Quintile Group, 1994-2002

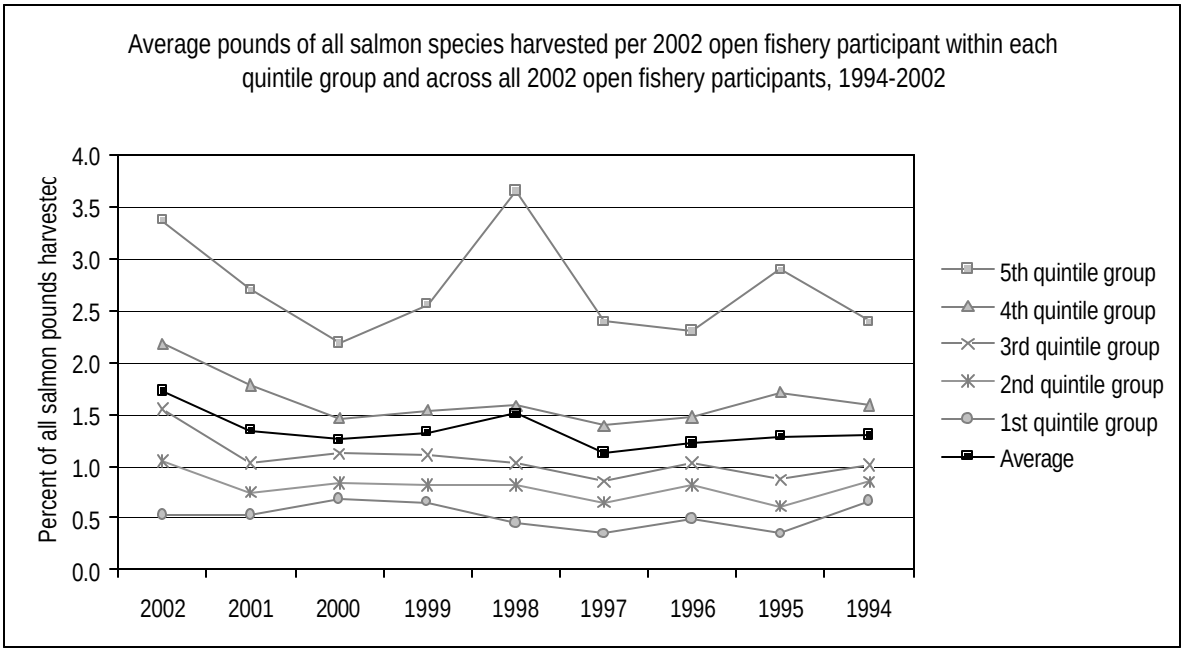
Year	Total sockeye pounds landed by all participants	Quintile rank	No. of 2002 open fishery participants with landings	Total sockeye pounds landed by 2002 open fishery participants	Average sockeye pounds per 2002 open fishery participant	Avg. lbs per 2002 open fishery participant (as pct of total pounds)
1996	14,866,234	5	4	1,098,897	274,724	1.85 %
		4	4	895,709	223,927	1.51 %
		3	4	677,006	169,252	1.14 %
		2	4	548,318	137,080	0.92 %
		1	4	318,734	79,684	0.54 %
			20	3,538,664	176,933	1.19 %
1995	11,464,647	5	4	921,981	230,495	2.01 %
		4	4	653,906	163,477	1.43 %
		3	4	559,134	139,784	1.22 %
		2	4	436,466	109,117	0.95 %
		1	4	262,366	65,592	0.57 %
			20	2,833,853	141,693	1.24 %
1994	10,085,882	5	4	751,066	187,767	1.86 %
		4	4	579,283	144,821	1.44 %
		3	4	466,526	116,632	1.16 %
		2	4	400,663	100,166	0.99 %
		1	4	281,295	70,324	0.70 %
			20	2,478,833	123,942	1.23 %

2.3b All Salmon Species

Table 2.3(b) contains data on the total pounds of all salmon species harvested by participants in the 2002 open fishery in each year over the 1994-2002 time period. The table also contains data on the total and average pounds harvested in each quintile group in each year. The average salmon pounds per participant in the quintile group and the average salmon pounds per participant across all quintile groups are shown as percentages of all salmon pounds harvested in the fishery. These percentages are compared across years in the summary chart shown below.

In 2002, harvest by each of the 22 participants in the 2002 Chignik salmon seine fishery averaged 1.72% of the total salmon pounds harvested in the fishery. Over the 1994-2001 time period, salmon harvests by individual participants from the 2002 open fishery averaged from 1.12% of the total salmon pounds harvested in the fishery in 1997 to 1.50% of the total salmon pounds harvested in the fishery in 1998. Thus relative to the total salmon pounds harvested in the fishery, participants in the 2002 open fishery did better on average in 2002 than they did over the entire 1994-2001 time period.

In 2002, salmon harvests by the top quintile (group 5) of participants in the 2002 open fishery averaged 3.37% of the total salmon pounds harvested in the Chignik salmon purse seine fishery. Over the 1994-2001 time period, participants from the 2002 open fishery who fell into the top quintile for a year, averaged from 2.19% of the total salmon pounds landed in fishery in 2000 to 3.65% of the total pounds harvested of all salmon species in the fishery in 1998. Thus relative to the total salmon pounds harvested in the fishery, the top quintile of participants in the 2002 open fishery did better on average in 2002 than they did over the 1994-2001 time period, with the exception of 1998.[9]



[9] Recall that the same participants may not fall into the same quintile group in each year.

Table 2.3b All Salmon Species

Distribution of 2002 Open Fishery Participants by Salmon (All Species) Harvest Quintile Group, 1994-2002

Year	Total salmon pounds landed by all participants	Quintile rank	No. of 2002 open fishery participants with landings	Total salmon pounds landed by 2002 open fishery participants	Average salmon pounds per 2002 open fishery participant	Avg. lbs per 2002 open fishery participant (as pct of total pounds)
2002	8,163,535	5	4	1,100,119	275,030	3.37 %
		4	5	890,272	178,054	2.18 %
		3	4	504,788	126,197	1.55 %
		2	5	427,668	85,534	1.05 %
		1	4	173,970	43,493	0.53 %
			22	3,096,817	140,764	1.72 %
2001	16,395,832	5	4	1,769,661	442,415	2.70 %
		4	4	1,165,827	291,457	1.78 %
		3	5	843,799	168,760	1.03 %
		2	4	494,638	123,660	0.75 %
		1	4	350,756	87,689	0.53 %
			21	4,624,681	220,223	1.34 %
2000	16,772,396	5	4	1,470,257	367,564	2.19 %
		4	4	976,278	244,070	1.46 %
		3	5	941,497	188,299	1.12 %
		2	4	560,466	140,117	0.84 %
		1	4	456,573	114,143	0.68 %
			21	4,405,071	209,765	1.25 %
1999	27,111,731	5	4	2,779,553	694,888	2.56 %
		4	4	1,675,498	418,875	1.54 %
		3	5	1,501,846	300,369	1.11 %
		2	4	885,911	221,478	0.82 %
		1	4	707,781	176,945	0.65 %
			21	7,550,589	359,552	1.33 %
1998	10,945,875	5	4	1,596,643	399,161	3.65 %
		4	4	689,645	172,411	1.58 %
		3	4	450,836	112,709	1.03 %
		2	4	359,576	89,894	0.82 %
		1	4	197,857	49,464	0.45 %
			20	3,294,557	164,728	1.50 %

Table 2.3b All Salmon Species, continued

Distribution of 2002 Open Fishery Participants by Salmon (All Species) Harvest Quintile Group, 1994-2002

Year	Total salmon pounds landed by all participants	Quintile rank	No. of 2002 open fishery participants with landings	Total salmon pounds landed by 2002 open fishery participants	Average salmon pounds per 2002 open fishery participant	Avg. lbs per 2002 open fishery participant (as pct of total pounds)
1997	9,567,631	5	4	912,881	228,220	2.39 %
		4	4	533,372	133,343	1.39 %
		3	4	324,253	81,063	0.85 %
		2	4	248,947	62,237	0.65 %
		1	4	133,263	33,316	0.35 %
			20	2,152,716	107,636	1.12 %
1996	17,730,842	5	4	1,628,691	407,173	2.30 %
		4	4	1,041,700	260,425	1.47 %
		3	4	733,030	183,258	1.03 %
		2	4	583,425	145,856	0.82 %
		1	4	348,526	87,132	0.49 %
			20	4,335,372	216,769	1.22 %
1995	23,797,500	5	4	2,749,033	687,258	2.89 %
		4	4	1,630,516	407,629	1.71 %
		3	4	829,333	207,333	0.87 %
		2	4	578,170	144,543	0.61 %
		1	4	337,132	84,283	0.35 %
			20	6,124,184	306,209	1.29 %
1994	15,216,337	5	4	1,455,299	363,825	2.39 %
		4	4	964,962	241,241	1.59 %
		3	4	612,053	153,013	1.01 %
		2	4	518,174	129,544	0.85 %
		1	4	398,870	99,718	0.66 %
			20	3,949,358	197,468	1.30 %

3.0 Variability of Relative Rankings Across Years

In Section 2.1, participants were placed into ten groups of roughly equal size based upon their pounds of harvest (called decile groups or decile rank). Group 1 contained the 10% of the participants with the lowest poundage totals during the year and group 10 contained the 10% of the participants with the highest poundage totals during the year.

The decile groups were of roughly equal size with respect to the total number of participants. However a participant's decile group could vary from one year to another depending upon the participant's harvest relative to others in the fishery during the year.

Questions of interest include the following:

- Do persons tend to stay in the same harvest decile group from year-to-year or do relative rankings change?
- If individual decile group rankings change, to what extent do they change from year-to-year?

In this section, participants are again given a decile ranking in a year based upon their total harvest in the year. To examine the stability of a participant's ranking across years, two statistics were calculated for each participant. These statistics were the range and the mean absolute deviation. Summary tables are then provided to show the variability of rankings across years.

The statistics reported in the summary tables of this section indicate that the majority of participants show some changes in their harvest decile rankings across years. This is true if the decile group assignments are based on sockeye pounds only, or if the decile group assignments are based on all salmon species. However, for most participants these cross-year changes in rankings are relatively small.

3.1 Frequency of the Range of Participants' Decile Rankings

Tables 3.1(a) and 3.1(b) provide frequency data on the "range" of participants' decile rankings over the 1997 through 2001 time period. The range is defined as a participant's maximum decile ranking over the time period, minus that participant's minimum decile ranking. For example, if a person's highest rank over the time period was decile group 10 in 1998 and that person's lowest rank was decile group 7 in 2001, then the person's range would be 3.[10]

Counts of all participants who fished multiple years during the 1997-2001 time period are represented in the "total" column of each table in this section, including individuals who were not members of the 2002 cooperative and who did not participate in the 2002 open fishery.

[10] Note that some participants did not fish in all of the years. The range was calculated from the decile ranks in the years a person fished. Ten persons fished in only one year over the 1997 through 2001 time period and were excluded from these tables.

3.1a Sockeye

Table 3.1(a) shows that most persons who participated in multiple years experienced some change in their decile rankings over the time period. This is true for 2002 cooperative members and 2002 open fishery participants. The ranges in this table are based on decile rankings determined by the pounds of sockeye landed by participants, as explained in Section 2.1(a).

Table 3.1a Sockeye
Frequency of the Range of Participants' Sockeye Harvest Decile Rankings, 1997-2001

Range	2002 Co-op members		2002 Open fishery participants		Total	
0	2	2.8%	4	19.0%	7	6.9%
1	13	18.1%	4	19.0%	19	18.8%
2	11	15.3%	2	9.5%	14	13.9%
3	11	15.3%	4	19.0%	17	16.8%
4	23	31.9%	3	14.3%	27	26.7%
5	6	8.3%	1	4.8%	8	7.9%
6	1	1.4%	3	14.3%	4	4.0%
7	3	4.2%	0	0.0%	3	3.0%
8	1	1.4%	0	0.0%	1	1.0%
9	1	1.4%	0	0.0%	1	1.0%
Total	72	100.0%	21	100.0%	101	100.0%

Only 6.9% of all multiple year participants had a range of 0, meaning that they were in the same decile group each year. The value for the range statistic varied from 0 to 9. The most common range was 4, as 26.7% of all multiple year participants had a range of 4. Again, this means that the difference between their highest and lowest sockeye decile group ranking was four.

3.1b All Salmon Species

The range calculations shown in Table 3.1(b) use decile rankings defined on the basis of the total pounds of all salmon species landed by participants. Compared to Table 3.1(a) above, including harvests of all salmon species appears to result in a smaller maximum value of the range across the 1997 to 2001 time period. When decile harvest groups were based on pounds of all salmon species, a total of 51.4% of participants had range values of two or less: 11.8% more than in Table 3.1a, where rankings are based on sockeye pounds only.

Table 3.1b All Salmon Species
Frequency of the Range of Participants' Salmon (All Species) Harvest Decile Rankings, 1997-2001

Range	2002 Co-op members		2002 Open fishery participants		Total	
0	4	5.6%	1	4.8%	8	7.9%
1	10	13.9%	6	28.6%	17	16.8%
2	19	26.4%	7	33.3%	27	26.7%
3	13	18.1%	3	14.3%	18	17.8%
4	8	11.1%	3	14.3%	11	10.9%
5	6	8.3%	0	0.0%	6	5.9%
6	9	12.5%	1	4.8%	11	10.9%
7	3	4.2%	0	0.0%	3	3.0%
Total	72	100.0%	21	100.0%	101	100.0%

Only 7.9% of all multiple year participants had a range of 0, meaning that they were in the same decile group each year. The value for the range varied from 0 to 7. The most common range was 2, as 26.7% of all multiple year participants had a range of 2. Again, this means that the difference between their highest and lowest all salmon decile group ranking was two.

3.2 Frequency of the Mean Absolute Deviation of Participants' Decile Rankings

Tables 3.2(a) and 3.2(b) provide frequency data on the "mean absolute deviation" of participants' decile rankings over the 1997 through 2001 time period. Again, ten persons with landings in only one year during this time period are excluded from the table. Counts of all participants who fished multiple years during the 1997-2001 time period are shown in the "total" column of each table in this section. Hence this column includes individuals who were not members of the 2002 cooperative and who did not participate in the 2002 open fishery.

The mean absolute deviation statistic is calculated by summing the absolute differences between a participant's decile rank in a year and the participant's average decile rank over all years and then dividing by the number of years the participant fished. Mathematically, the mean absolute deviation is calculated as follows:

$$\textit{Mean Absolute Deviation} = \left(\sum_{j=1}^{n_i} | R_{ij} - \overline{R}_i |\right) / n_i$$

Where: R_{ij} = *the decile rank of participant "i" in year "j"*
$\overline{R}_i$ = *the average decile rank of participant "i" over* n_i *years*
n_i = *the number of years participant "i" fished*

The mean absolute deviation has a value of greater than or equal to zero. A mean absolute deviation of zero would mean that the participant had the same rank (fell into the same decile group) in each year of participation. The larger the mean absolute deviation, the greater the variability in a person's ranking from year-to-year.

3.2a Sockeye

Table 3.2a shows the mean absolute deviation of participants' harvest decile rankings in each of the years they participated in the fishery, 1997-2001. The decile rankings from which the statistic was calculated were based on the pounds of sockeye harvested by participants in each of the years they made landings, 1997-2001.

Table 3.2a Sockeye
Frequency of the Mean Absolute Deviation of Participants' Sockeye Harvest Decile Rankings, 1997-2001

Mean absolute deviation	2002 Co-op members		2002 Open fishery participants		Total	
0	2	2.8%	4	19.0%	7	6.9%
0.01 - 0.50	14	19.4%	4	19.0%	20	19.8%
0.51 - 1.00	16	22.2%	6	28.6%	23	22.8%
1.01 - 1.50	26	36.1%	4	19.0%	34	33.7%
1.51 - 2.00	9	12.5%	3	14.3%	12	11.9%
2.01 - 2.50	3	4.2%	0	0.0%	3	3.0%
2.51 - 3.00	2	2.8%	0	0.0%	2	2.0%
Total	72	100.0%	21	100.0%	101	100.0%

Table 3.2(a) groups the mean absolute deviations statistic for multiple year participants into ranges, and then provides counts of the number of participants who fell into each range. As shown in the total column, only 6.9% of the multiple year participants have a mean absolute deviation of zero, indicating that they had no change in their sockeye decile rank over the time period.

While the data indicate that most multiple year participants' decile ranks changed from year-to-year, the data also suggest that the mean absolute deviation from a participant's average rank was small for the majority of participants. For example, roughly half (49.5%) of the multiple year participants over the 1997 through 2001 time period had a mean absolute deviation of 1.00 or less. 45.6% of multiple year participants had a mean absolute deviation of 1.01 to 2.00, and only 5% of the multiple year participants had a mean absolute deviation greater than 2.00.

3.2b All Salmon Species

In Table 3.2b, the decile rankings from which the mean absolute deviation was calculated were based on the pounds harvested of all salmon species by participants in each of the years they made landings, 1997-2001.

Table 3.2b All Salmon Species
Frequency of the Mean Absolute Deviation of Participants' Salmon (All Species) Harvest Decile Rankings, 1997-2001

Mean absolute deviation	2002 Co-op members		2002 Open fishery participants		Total	
0	4	5.6%	1	4.8%	8	7.9%
0.01 - 0.50	15	20.8%	8	38.1%	24	23.8%
0.51 - 1.00	22	30.6%	6	28.6%	30	29.7%
1.01 - 1.50	11	15.3%	4	19.0%	16	15.8%
1.51 - 2.00	14	19.4%	2	9.5%	17	16.8%
2.01 - 2.50	4	5.6%	0	0.0%	4	4.0%
2.51 - 3.00	2	2.8%	0	0.0%	2	2.0%
Total	72	100.0%	21	100.0%	101	100.0%

Table 3.2(b) groups the mean absolute deviations statistic for multiple year participants into ranges, and then provides counts of the number of participants who fell into each range. As shown in the total column, only 7.9% of the multiple year participants have a mean absolute deviation of zero, indicating that they had no change in their all salmon decile rank over the time period.

While the data indicate that most multiple year participants' decile ranks changed from year-to-year, the data also suggest that these mean absolute deviations from a participant's average rank were small for the majority of participants. For example, 61.4% of the multiple year participants over the 1997 through 2001 time period had a mean absolute deviation of 1.00 or less. 32.6% of multiple year participants had a mean absolute deviation of 1.01 to 2.00, and only 6% of the multiple year participants had a mean absolute deviation greater than 2.00.

4.0 Participation in Other Fisheries

One concern expressed about the Chignik cooperative fishery is that it would "free up" many Chignik fishermen to participate in other fisheries while the Chignik salmon purse seine fishery is occurring. If so, this might increase the pressure in other fisheries.

To address these concerns, the Board passed a regulation prohibiting a CFEC permit holder who participates in the Chignik cooperative fishery from participating in any other commercial salmon net registration area as either a permit holder or crewmember from June 1 through August 31. The Board also clarified that a CFEC permit holder participating in the cooperative fishery who has multiple salmon net permits must designate the Chignik Area as the single area for salmon net fishing in the year, in accordance with the requirements in 5 AAC 39.115 and 20 AAC 05.1940.[11] These measures restricted the fisheries that a Chignik permit holder could fish during the time period of the Chignik salmon purse seine fishery.

This section attempts to address the following questions:

- Did Chignik salmon purse seine permit holders participate in other fisheries as permit holders during the time period of the 2002 Chignik salmon purse seine fishery?
- If so, was the amount of the participation in other fisheries any greater or less than normal?

4.1 Frequency of Participation (as CFEC Permit Holders) in Other Fisheries by Chignik Participants

No computerized data exist on the participation of individuals as crewmen in Alaska's commercial fisheries. However, fish tickets record the permit number of the permit holder recording a landing, so participation of individuals as permit holders can be tracked.

Table 4.1 provides counts of the number of permit holders in the Chignik salmon purse seine fishery who recorded landings in other fisheries during the time period the Chignik fishery normally occurs.[12] Table 4.1 includes summary data from 1992 through 2002.

The table provides counts for two time periods within each year. The first time period is from June through September, which is the entire time period during which the Chignik salmon purse seine fishery normally occurs. The second time period is July and August, which is typically when the most intense fishing in the Chignik salmon fishery occurs.

[11] See 15 AAC 15.359 (b)(6)(A) and 15 AAC 15.359 (b)(6)(B).

[12] Note that for purposes of this table, "permit holder" includes both the current holders of the CFEC permits and any emergency transfer recipients at the time of the landing. In 2002, "permit holder" also includes current Chignik salmon permit holders who did not record landings in the year.

Table 4.1
Counts of Chignik Permit Holders with Harvests in Other Fisheries During the Chignik Salmon Purse Seine Fishery Season, 1992-2002

Year	Unique counts from June through September	Unique counts In July and August
1992	8	0
1993	4	2
1994	5	1
1995	4	1
1996	3	2
1997	11	5
1998	9	1
1999	16	3
2000	5	4
2001	17	6
2002[13]	3	3
1992-2002 inclusive	37	9

As can be seen, a considerable number of Chignik salmon purse seine participants recorded landings in other fisheries over the June through September time period in some years. However, there have been very few Chignik permit holders with landings in other fisheries during the July and August time period, when the largest portion of the Chignik fishing occurs. These data suggest that most of the landings in other fisheries are occurring in June (typically prior to the peak of the Chignik fishery) or in September (after the peak of the Chignik fishery).

A more detailed examination of the fish ticket data shows that harvests by Chignik permit holders in other fisheries during the Chignik salmon season have come from several different permit fisheries. The permit fisheries that appear most frequently in the data are the statewide miscellaneous finfish mechanical jig fishery (M26B); the statewide miscellaneous finfish pot gear fishery (M09B/M91B); the statewide halibut longline fishery (B06B/B61B); and the statewide sablefish longline fishery (C06B/C61B). Several herring permit fisheries also occur in the data.

The 2002 data do not show abnormally high participation by permit holders in other fisheries during the Chignik salmon season. However, the reader is cautioned that 2002 fish ticket data are incomplete at the time of this writing, and it is possible that the counts of Chignik permit holders who participated in other fisheries may increase as more data are added to the file.

[13] These are preliminary counts since the 2002 ADF&G fish ticket data are incomplete and the 2002 halibut fish ticket data from the International Pacific Halibut Commission (IPHC) are not yet available to CFEC. Thus these 2002 counts may increase as data from other fisheries are added to the computerized files.

5.0 Permit Transfers and Estimated Permit Values

This section provides data on permit transfers and CFEC's estimated permit values for the Chignik salmon purse seine fishery. ADF&G asked CFEC to address the following questions:

- Was there an unusual level of permit transfer activity in the Chignik fishery in 2002?
- Did the 2002 Chignik cooperative have any impact on the market value of Chignik salmon purse seine permits?

Table 5.0 provides summary data on transfer activity for Chignik salmon purse seine permits over the 1992 through 2002 time period.[14] The table includes counts of emergency transfers, all permanent transfers, and permanent transfers that were sales transactions in each year.[15] The table also includes CFEC's estimate of the average permit value in each year.

Table 5.0
Transfer Activity in the Chignik Salmon Seine Fishery, 1992-2002

Year	Emergency transfers	Permanent transfers[16]	Permanent transfers that were sales transactions	Average permit price[17]
1992	21	2	2	$403,100
1993	11	7	2	$349,800
1994	17	8	3	$238,300
1995	19	6	6	$228,300
1996	19	6	4	$194,500
1997	12	9	6	$188,300
1998	9	5	0	$185,500
1999	9	6	4	$158,800
2000	13	4	3	$200,000
2001	11	2	1	$185,800
2002[18]	10	5	1	$186,600
Total	151	60	32	

[14] The data in 2002 are as of this writing. More transfers may occur before year-end.
[15] Emergency transfers include emergency transfers of interim entry permits.
[16] These totals include 2 foreclosures in 1994 and 2 foreclosures in 1998 by the Department of Community and Economic Development and the Commercial Fishing and Agriculture Bank.
[17] CFEC permit value estimates are based on market values from actual transactions as reported on the transfer surveys. By statute and regulation, the financial data reported on the CFEC permit transfer surveys are confidential and cannot be disclosed to the public. For reporting purposes, CFEC's estimated permit market values must be averages of at least four transactions. In 2002, the most recent available estimate is provided (October 2002). In past years, year-end estimates are provided.
[18] The data in 2002 are as of this writing. It is possible that more transfers may occur before year-end.

As can be seen in Table 5.0, the number of permanent transfers of Chignik salmon purse seine entry permits is relatively small in most years.[19] The five permanent transfers that have occurred so far in 2002, appear to be a typical number for the fishery when compared to other years.

So far in 2002, there has been only one permanent transfer of a Chignik salmon purse seine permit that involved a sale. This fishery often has a significant percentage of permanent transfers that are gifts. In 2001, there was also only one permanent transfer that involved a sale.

There were ten emergency transfers of both interim entry permits and permanent entry permits in 2002. As can be seen, this is not an unusually high number of emergency transfers in this fishery. A closer look at the 2002 emergency transfers indicated that seven out of the ten emergency transfers represented permits held by estates. Five of the seven permits held by estates were interim entry permits.

The authors feel that the data are still inadequate to answer the question concerning the impact of the cooperative on the market value of the permit. As noted, there has been only one sales transaction so far in 2002 and that transfer occurred prior to the fishery. More sales transfers will need to occur before the impact of the cooperative on permit market values can be analyzed.

In theory, the market value of an entry permit represents the present value of the stream of expected net economic returns to a marginal fisherman. Thus, if the Chignik cooperative fishery continues to occur and it provides a means to increase profitability relative to the open fishery of past years, the market value of Chignik salmon purse seine permits should increase.

Average permit values calculated from actual Chignik salmon purse seine permit sales transactions are shown in Table 5.0. The reader should view the estimates of average permit prices in the fishery provided in Table 5.0 with caution since the permit values used to calculate the average can be separated by a significant amount of time due to the small volume of sales transfers in this fishery. The source of permit value data is CFEC's mandatory transfer survey.

CFEC requires the completion of a transfer survey with each permanent transfer. If the permanent transfer is a sale, CFEC collects the information on the sales price. These transfer surveys provide the data for CFEC's permit value estimates. However, to maintain the confidentiality of individual transactions, CFEC only reports average prices for permit sales when at least four permits are included in the average. This means that CFEC's estimate of an average permit price at a point in time may be based on some permit transactions that occurred in an earlier time period.

[19] CFEC data indicate that over the 1975-2001 time period, on average, approximately 9% of entry permits in all limited fisheries were permanently transferred each year. In many years, permanent transfer rates in the Chignik salmon purse seine fishery have been below the overall average.

For example, the value reported in Table 5.0 for 2002 is CFEC's permit value estimate for October 2002. To include at least four values in the estimate, CFEC had to include all sales transfers between March 2000 and April 2002. Thus this $186,600 estimate may not be a good estimate of the market value today. In a fishery with a small volume of transfers like Chignik, CFEC's estimates of market value can lag the market.

Permit brokers can serve as an alternative source of market value estimates. For example, the November 2002 issue of *Pacific Fishing* includes estimates of "Alaska Entry Permit Prices" provided by Mike Painter with The Permit Master. That report lists an "asking price" of $160,000 for a Chignik salmon purse seine permit, which is below the current estimate provided by CFEC.