4 QS Transfers and QS Prices

Permanent transferability of QS is an important part of the IFQ program. Transfers allow QS to move to persons who feel that they can use it more profitably and allow for consolidation of QS holdings and fishing operations. This chapter looks at the extent of permanent transfers and the prices paid for QS in permanent transactions during the first four years of the program.

Section 4.1 presents data on the volume and rate of permanent QS transfers, and on the number and percentage of persons who transferred QS, summarized by management area from 1995 through 1998.

Section 4.2 presents similar data on QS transfer rates and on QS holder transfer rates, summarized by management area *and* vessel category from 1995 through 1998.

Section 4.3 presents estimates of average prices for permanent QS transfers broken out by management area, vessel category, and year.

Section 4.4 presents 1995-1998 QS price estimates based upon statistical models. Average prices for many management area, vessel category, and year combinations cannot be presented because of a lack of data. The use of statistical models permits very detailed breakouts of prices. In this section, estimated prices are shown by management area, vessel category, block status, size of block, year, and quarter within the year.

4.1 Transfer Rates by Area

Table 4-1 has data on QS transfer rates and on QS holder transfer rates Data are provided by management area for each year from 1995 through 1998, and for all four years together. The table contains information on the QS holdings at the end of each year, the total QS permanently transferred, the QS transfer rate, the total number of QS holders at the end of the year, the total number of QS holders who transferred QS (transferors), and the rate at which QS holders transferred QS. The QS transfer rates are the ratios of QS transferred to total QS held at the end of the year, expressed as a percentage. The QS holder transfer rate is the ratio of QS transferors to total QS holders at the end of the year, expressed as a percentage.

Table 4-1 shows a substantial volume of permanent QS transfers. Over all four years combined, the QS transfer rates range from a low of 0.3% in Area 4E (where all of the TAC had been allocated to CDQs), to a high of 14.2% in Area 4A. In each year, the lowest QS transfer rates were in Area 4E where there were no transfers in 1995, 1996, or

1998. The highest QS transfer rate in any single year occurred in Area 4D in 1997 where 24.0% of the QS was transferred.

In 1998 the volume of QS transfered and the QS transfer rates fell from 1997 levels in every area. These declines were often large. For example, in Area 3B the volume of QS transferred fell by more than half, and in area 4A it fell by almost three-fourths. The cause of the declines is not clear. It may be that reallocations of QS from persons who wanted to alter their initial allocations were largely complete by that time. However, as noted in Section 4.3, Alaska halibut gross revenues and halibut QS prices both declined in 1998. These changes may also have been associated with the change in the volume of transfers.

The QS transfer rates for the four year period tended to be high compared to transfer rates for Alaska limited entry permits. Over the years 1975 to 1998, the ratio of the total number of limited entry permit transfers to the total number of transferable permit-years, interpreted here as the permit transfer rate, was 9%. Annual permit transfer rates during the period ranged from 7% to 13%.[22]

Table 4-1 also reports on the QS holder transfer rates. These are the rates derived from the ratios of the number of persons transferring QS to the total number of persons holding QS at the end of the calendar year. Over the four years combined, these rates ranged from a low of 0.2% in Area 4E to a high of 22.5% in Area 3B.

In all areas, both the number of QS transferors and the QS holder transfer rate fell from 1997 to 1998. In many cases these declines were large. For example, the numbers of QS transferors in Area 2C fell by 48.1%. These movements in the number of QS transferors and the QS holder transfer rate paralleled similar declines from 1997 to 1998 for the volume of QS transfers and the QS transfer rate.

[22]Iverson, Kurt, Al Tingley, and Elaine Dinneford. *Executive Summary. Changes in the Distribution of Alaska's Commercial Fisheries Entry Permits, 1975-1998.* Alaska Commercial Fisheries Entry Commission. CFEC 99-3N-EXEC. Juneau: July 1999. Table 1, page 4. Transfer rates of State of Alaska limited entry permits and halibut QS units are not completely comparable. Limited entry permits provide an all-or-nothing access to the fishery, and leasing is prohibited, except in emergency cases. Halibut QS units can be transferred in small amounts by persons who remain in the fishery and some halibut QS units can be leased.

Table 4-1. Halibut QS Transfer Rates by Area and Year

Area	Year	Year-end Total QS	QS Transferred	QS Transfer Rate %	Year-end Total QS Holders	QS Transferors	QS Holder Transfer Rate %
2C	1995	58,965,237	10,488,537	17.8	2,134	447	20.9
	1996	59,025,567	8,970,321	15.2	1,920	441	23.0
	1997	59,549,860	5,952,264	10.0	1,742	320	18.4
	1998	59,551,257	3,602,291	6.0	1,685	166	9.9
	All Yrs	237,091,921	29,013,413	12.2	7,481	1,374	18.4
3A	1995	182,683,910	28,557,489	15.6	2,764	523	18.9
	1996	184,311,045	26,626,791	14.4	2,541	529	20.8
	1997	184,740,655	18,560,798	10.0	2,343	436	18.6
	1998	184,723,476	11,374,984	6.2	2,247	242	10.8
	All Yrs	736,459,086	85,120,062	11.6	9,895	1,730	17.5
3B	1995	53,394,413	7,332,140	13.7	957	150	15.7
	1996	53,824,727	7,576,146	14.1	838	248	29.6
	1997	53,912,549	7,184,384	13.3	715	233	32.6
	1998	53,840,588	3,077,361	5.7	669	85	12.7
	All Yrs	214,972,277	25,170,031	11.7	3,179	716	22.5
4A	1995	14,276,912	1,757,035	12.3	478	91	19.0
	1996	14,421,900	2,069,893	14.4	433	89	20.6
	1997	14,502,965	3,444,152	23.7	382	128	33.5
	1998	14,503,009	905,843	6.2	359	48	13.4
	All Yrs	57,704,786	8,176,923	14.2	1,652	356	21.5
4B	1995	9,022,264	408,998	4.5	145	13	9.0
	1996	9,281,377	432,444	4.7	141	12	8.5
	1997	9,284,774	1,799,544	19.4	132	32	24.2
	1998	9,284,774	579,841	6.2	124	15	12.1
	All Yrs	36,873,189	3,220,827	8.7	542	72	13.3
4C	1995	3,969,186	105,330	2.7	80	3	3.8
	1996	3,969,186	614,446	15.5	80	5	6.3
	1997	3,969,186	380,063	9.6	77	9	11.7
	1998	3,969,186	213,635	5.4	72	7	9.7
	All Yrs	15,876,744	1,313,474	8.3	309	24	7.8
4D	1995	4,685,996	109,563	2.3	67	2	3.0
	1996	4,790,491	438,168	9.1	68	5	7.4
	1997	4,790,491	1,150,444	24.0	61	21	34.4
	1998	4,746,318	323,172	6.8	56	11	19.6
	All Yrs	19,013,296	2,021,347	10.6	252	39	15.5
4E	1995	139,999	0	0.0	104	0	0
	1996	139,999	0	0.0	104	0	0
	1997	139,999	1,856	1.3	104	1	1.0
	1998	139,999	0	0.0	104	0	0
	All Yrs	559,996	1,856	0.3	416	1	0.2

4.2 Transfer Rates by Area and Vessel Category

The annual QS and QS holder transfer rates for each area and vessel category are shown in Table 4-2. Data are provided for 1995 through 1998, and for all four years together. The variables shown in this table are those presented in Table 4-1, however the observations are more detailed management area *and* vessel category breakouts, as opposed to the management area summaries presented in Table 4-1.

Table 4-2 contains information on the QS holdings at the end of the year, the total QS permanently transferred, the QS transfer rate, the total number of QS holders at the end of the year, the total number of QS holders who transferred QS (transferors), and the rate at which QS holders transferred QS. The QS transfer rates are the ratios of QS transferred to total QS held at the end of the year, expressed as a percentage. The QS holder transfer rate is the ratio of QS transferors to total QS holders at the end of the year, expressed as a percentage.

QS transfer rates often diverged widely between vessel categories within an area. For example, over the four-year period, the average QS transfer rate for freezer vessels in Area 2C was only 5%, while the rate for "greater than 60 feet" catcher vessel QS was 15.9%. Similarly, the transfer rate for "less than or equal to 35 feet" catcher vessel QS in Area 4B was 3.6%, while the rate for freezer vessel QS was 21.1%. QS holder transfer rates also showed large differences between vessel categories.

In Areas 2C through 4A the "four-year" freezer QS transfer rates tended to be relatively small compared to the catcher vessel category QS transfer rates. However, in Areas 4B, 4C, and 4D, freezer vessel transfer rates were larger than the catcher vessel transfer rates. In Area 4E one of the catcher vessel categories had a non-zero transfer rate due to activity in only one year; no freezer vessel QS has been issued in Area 4E.

Table 4-2. Halibut QS Transfer Rates by Area, Vessel Class, and Year

Area	Year	Vessel Class	Year-end Total QS	QS Transferred	QS Transfer Rate %	Year-end Total QS Holders	QS Transferors	QS holder Transfer Rate %
2C	1995	Freezer	1,233,704	14,957	1.2	30	2	6.7
		GT 60 ft.	2,900,705	454,014	15.7	125	18	14.4
		36-60 ft.	45,222,555	8,021,093	17.7	1,019	279	27.4
		LE 35 ft.	9,608,273	1,998,473	20.8	984	152	15.4
	1996	Freezer	1,243,061	170,327	13.7	29	9	31.0
		GT 60 ft.	2,791,577	702,729	25.2	102	32	31.4
		36-60 ft.	45,810,132	6,233,633	13.6	954	247	25.9
		LE 35 ft.	9,180,797	1,863,632	20.3	871	158	18.1
	1997	Freezer	1,249,141	33,187	2.7	29	5	17.2
		GT 60 ft.	2,709,684	373,203	13.8	91	16	17.6
		36-60 ft.	46,498,798	4,489,620	9.7	873	180	20.6
		LE 35 ft.	9,092,237	1,056,254	11.6	793	122	15.4
	1998	Freezer	1,249,141	31,432	2.5	29	2	6.9
		GT 60 ft.	2,702,528	240,851	8.9	83	13	15.7
		36-60 ft.	46,512,181	2,695,091	5.8	855	95	11.1
		LE 35 ft.	9,087,407	634,917	7.0	758	56	7.4
	All Yrs	Freezer	4,975,047	249,903	5.0	117	18	15.4
		GT 60 ft.	11,104,494	1,770,797	15.9	401	79	19.7
		36-60 ft.	184,043,666	21,439,437	11.6	3,701	801	21.6
		LE 35 ft.	36,968,714	5,553,276	15.0	3,406	488	14.3
3A	1995	Freezer	4,156,950	164,789	4.0	37	2	5.4
		GT 60 ft.	67,514,777	10,588,079	15.7	274	82	29.9
		36-60 ft.	97,630,610	14,700,637	15.1	1,349	284	21.1
		LE 35 ft.	13,381,573	3,103,984	23.2	1,163	161	13.8
	1996	Freezer	4,736,344	210,053	4.4	38	5	13.2
		GT 60 ft.	68,251,744	7,135,866	10.5	281	72	25.6
		36-60 ft.	98,459,927	16,201,562	16.5	1,248	316	25.3
		LE 35 ft.	12,863,030	3,079,310	23.9	1,062	145	13.7
	1997	Freezer	4,755,112	391,508	8.2	38	7	18.4
		GT 60 ft.	68,298,684	6,583,233	9.6	277	52	18.8
		36-60 ft.	98,862,582	9,942,793	10.1	1,151	243	21.1
		LE 35 ft.	12,824,277	1,643,264	12.8	972	146	15.0
	1998	Freezer	4,755,112	471,833	9.9	37	3	8.1
		GT 60 ft.	68,347,490	2,200,081	3.2	277	40	14.4
		36-60 ft.	98,745,121	6,558,793	6.6	1,111	128	11.5
		LE 35 ft.	12,875,753	2,144,277	16.7	923	76	8.2
	All Yrs	Freezer	18,403,518	1,238,183	6.7	150	17	11.3
		GT 60 ft.	272,412,695	26,507,259	9.7	1,109	246	22.2
		36-60 ft.	393,698,240	47,403,785	12.0	4,859	971	20.0
		LE 35 ft.	51,944,633	9,970,835	19.2	4,120	528	12.8

(Continued)

Table 4-2. Halibut QS Transfer Rates by Area, Vessel Class, and Year

Area	Year	Vessel Class	Year-end Total QS	QS Transferred	QS Transfer Rate %	Year-end Total QS Holders	QS Transferors	QS Holder Transfer Rate %
3B	1995	Freezer	1,525,163	148,216	9.7	20	1	5.0
		GT 60 ft.	29,676,351	3,443,909	11.6	195	58	29.7
		36-60 ft.	20,234,235	3,444,421	17.0	511	81	15.9
		LE 35 ft.	1,958,664	295,594	15.1	253	12	4.7
	1996	Freezer	1,587,671	166,975	10.5	18	7	38.9
		GT 60 ft.	29,930,873	2,881,424	9.6	182	95	52.2
		36-60 ft.	20,598,405	3,988,982	19.4	483	120	24.8
		LE 35 ft.	1,707,778	538,765	31.5	188	28	14.9
	1997	Freezer	1,593,155	8,498	0.5	18	2	11.1
		GT 60 ft.	29,952,504	3,317,731	11.1	178	42	23.6
		36-60 ft.	20,668,535	3,338,394	16.2	394	151	38.3
		LE 35 ft.	1,698,355	519,761	30.6	160	46	28.8
	1998	Freezer	1,593,155	2,766	0.2	18	1	5.6
		GT 60 ft.	29,944,248	581,437	1.9	175	23	13.1
		36-60 ft.	20,621,534	2,264,440	11.0	374	47	12.6
		LE 35 ft.	1,681,651	228,718	13.6	139	17	12.2
	All Yrs	Freezer	6,299,144	326,455	5.2	74	11	14.9
		GT 60 ft.	119,503,976	10,224,501	8.6	730	218	29.9
		36-60 ft.	82,122,709	13,036,237	15.9	1,762	399	22.6
		LE 35 ft.	7,046,448	1,582,838	22.5	740	103	13.9
4A	1995	Freezer	588,884	58,866	10.0	17	1	5.9
		GT 60 ft.	8,350,730	587,903	7.0	136	40	29.4
		36-60 ft.	4,243,601	896,719	21.1	135	28	20.7
		LE 35 ft.	1,093,697	213,547	19.5	200	22	11.0
	1996	Freezer	617,547	172,451	27.9	17	3	17.6
		GT 60 ft.	8,478,868	769,298	9.1	139	40	28.8
		36-60 ft.	4,267,424	905,293	21.2	126	31	24.6
		LE 35 ft.	1,058,061	222,851	21.1	168	15	8.9
	1997	Freezer	619,003	2,590	0.4	17	3	17.6
		GT 60 ft.	8,532,238	1,694,690	19.9	130	33	25.4
		36-60 ft.	4,280,423	1,301,974	30.4	107	57	53.3
		LE 35 ft.	1,071,301	444,898	41.5	151	41	27.2
	1998	Freezer	619,003	734	0.1	17	1	5.9
		GT 60 ft.	8,531,883	327,750	3.8	124	23	18.5
		36-60 ft.	4,287,490	372,816	8.7	100	16	16.0
		LE 35 ft.	1,064,633	204,543	19.2	138	9	6.5
	All Yrs	Freezer	2,444,437	234,641	9.6	68	8	11.8
		GT 60 ft.	33,893,719	3,379,641	10.0	529	136	25.7
		36-60 ft.	17,078,938	3,476,802	20.4	468	132	28.2
		LE 35 ft.	4,287,692	1,085,839	25.3	657	87	13.2

(Continued)

Table 4-2. Halibut QS Transfer Rates by Area, Vessel Class, and Year

Area	Year	Vessel Class	Year-end Total QS	QS Transferred	QS Transfer Rate %	Year-end Total QS Holders	QS Transferors	QS Holder Transfer Rate %
4B	1995	Freezer	322,852	0	0.0	7	0	0.0
		GT 60 ft.	7,100,366	259,872	3.7	78	8	10.3
		36-60 ft.	1,333,447	149,126	11.2	34	5	14.7
		LE 35 ft.	265,599	0	0.0	27	0	0.0
	1996	Freezer	553,489	0	0.0	8	0	0.0
		GT 60 ft.	7,114,526	317,384	4.5	77	7	9.1
		36-60 ft.	1,347,763	98,981	7.3	33	2	6.1
		LE 35 ft.	265,599	16,079	6.1	26	3	11.5
	1997	Freezer	553,489	312,602	56.5	7	3	42.9
		GT 60 ft.	7,114,526	1,216,374	17.1	72	19	26.4
		36-60 ft.	1,347,763	260,065	19.3	29	9	31.0
		LE 35 ft.	268,996	10,503	3.9	26	2	7.7
	1998	Freezer	553,489	105,248	19.0	7	1	14.3
		GT 60 ft.	7,114,526	350,032	4.9	70	7	10.0
		36-60 ft.	1,347,763	112,451	8.3	28	6	21.4
		LE 35 ft.	268,996	12,110	4.5	25	1	4.0
	All Yrs	Freezer	1,983,319	417,850	21.1	29	4	13.8
		GT 60 ft.	28,443,944	2,143,662	7.5	297	41	13.8
		36-60 ft.	5,376,736	620,623	11.5	124	22	17.7
		LE 35 ft.	1,069,190	38,692	3.6	104	6	5.8
4C	1995	Freezer	18,876	37,752	200	1	2	200
		GT 60 ft.	1,767,422	0	0.0	29	0	0.0
		36-60 ft.	1,007,084	67,578	6.7	20	1	5.0
		LE 35 ft.	1,175,804	0	0.0	31	0	0.0
	1996	Freezer	18,876	37,752	200	1	2	200
		GT 60 ft.	1,620,607	0	0.0	28	0	0.0
		36-60 ft.	820,661	0	0.0	19	0	0.0
		LE 35 ft.	1,509,042	576,694	38.2	33	4	12.1
	1997	Freezer	18,876	0	0.0	1	0	0.0
		GT 60 ft.	1,620,607	264,166	16.3	28	6	21.4
		36-60 ft.	820,661	115,897	14.1	18	3	16.7
		LE 35 ft.	1,509,042	0	0.0	33	0	0.0
	1998	Freezer	18,876	0	0.0	1	0	0.0
		GT 60 ft.	1,620,607	106,938	6.6	26	4	15.4
		36-60 ft.	820,661	92,984	11.3	17	3	17.6
		LE 35 ft.	1,509,042	13,713	0.9	32	1	3.1
	All Yrs	Freezer	75,504	75,504	100	4	4	100
		GT 60 ft.	6,629,243	371,104	5.6	111	10	9.0
		36-60 ft.	3,469,067	276,459	8.0	74	7	9.5
		LE 35 ft.	5,702,930	590,407	10.4	129	5	3.9

(Continued)

Table 4-2. Halibut QS Transfer Rates by Area, Vessel Class, and Year

Area	Year	Vessel Class	Year-end Total QS	QS Transferred	QS Transfer Rate %	Year-end Total QS Holders	QS Transferors	QS Holder Transfer Rate %
4D	1995	Freezer	355,318	0	0.0	5	0	0.0
		GT 60 ft.	3,975,433	69,848	1.8	49	1	2.0
		36-60 ft.	355,245	39,715	11.2	14	1	7.1
	1996	Freezer	413,936	154,426	37.3	6	1	16.7
		GT 60 ft.	4,021,310	283,742	7.1	49	4	8.2
		36-60 ft.	355,245	0	0.0	14	0	0.0
	1997	Freezer	413,936	145,364	35.1	5	3	60.0
		GT 60 ft.	4,021,310	846,912	21.1	47	13	27.7
		36-60 ft.	355,245	158,168	44.5	13	5	38.5
	1998	Freezer	413,936	58,618	14.2	5	1	20.0
		GT 60 ft.	4,021,310	244,340	6.1	43	10	23.3
		36-60 ft.	311,072	20,214	6.5	11	2	18.2
	All Yrs	Freezer	1,597,126	358,408	22.4	21	5	23.8
		GT 60 ft.	16,039,363	1,444,842	9.0	188	28	14.9
		36-60 ft.	1,376,807	218,097	15.8	52	8	15.4
4E	1995	GT 60 ft.	11,176	0	0.0	2	0	0.0
		36-60 ft.	37,032	0	0.0	7	0	0.0
		LE 35 ft.	91,791	0	0.0	95	0	0.0
	1996	GT 60 ft.	11,176	0	0.0	2	0	0.0
		36-60 ft.	37,032	0	0.0	7	0	0.0
		LE 35 ft.	91,791	0	0.0	95	0	0.0
	1997	GT 60 ft.	11,176	0	0.0	2	0	0.0
		36-60 ft.	37,032	1,856	5.0	7	1	14.3
		LE 35 ft.	91,791	0	0.0	95	0	0.0
	1998	GT 60 ft.	11,176	0	0.0	2	0	0.0
		36-60 ft.	37,032	0	0.0	7	0	0.0
		LE 35 ft.	91,791	0	0.0	95	0	0.0
	All Yrs	GT 60 ft.	44,704	0	0.0	8	0	0.0
		36-60 ft.	148,128	1,856	1.3	28	1	3.6
		LE 35 ft.	367,164	0	0.0	380	0	0.0

4.3 QS Sales Prices

This section uses information on 1995 to 1998 transfers to provide estimates of average prices per unit of halibut QS.

Table 4-3 shows average annual prices per QS unit by area for 1995 to 1998. The prices shown in this table were calculated from transfers in which the actual current-year IFQ transferred with the QS was within 5% of the standard IFQ per unit of QS in that year and management area.[23] Mean and standard deviations for the price per QS unit are provided in dollars per pound of IFQ and in dollars per QS unit. The pounds of IFQ, the amount of QS, and the number of transfers used to produce the estimates are also shown.

Table 4-3 shows that the estimated average prices of QS, in dollars per QS unit, range from a low of $0.44 for Area 3B QS in 1995 to a high of $2.18 for Area 4B QS in 1998. Quota share prices in dollars per QS unit are not comparable across areas since the ratio of IFQs to QS differs from area to area and may differ from year to year as TACs change.

QS prices in dollars per pound of associated IFQ are more comparable across areas. These prices ranged from a low of $5.03 in Area 4B in 1996 to a high of $11.37 in Area 2C in 1997. The estimated average prices in dollars per IFQ rose from 1995 to 1997 and then fell in 1998 in Areas 2C, 3A, and 3B. In Area 4A they rose from 1995 to 1996, but were relatively unchanged from 1996 to 1997, and then fell in 1998. In the other areas there are relatively small numbers of transactions and there is insufficient information to determine anything about price trends.

Table 4-4 provides a more detailed breakout of QS price estimates by management area *and* vessel category. The variables shown in Table 4-4 are the same as in Table 4-3.

In many of the area and vessel category combinations there are so few transactions that to preserve confidentiality the averages were not reported.[24] There are, however, generally enough transactions to report QS prices for the catcher vessel categories in Areas 2C, 3A, 3B, and 4A and some general observations can be made. QS prices tend to be higher in larger catcher vessel categories. In each year QS prices in the "greater than 60 feet" catcher vessel category tended to be higher than QS prices in the "36 to 60 feet" category; prices tend to be even lower in the "less than or equal to 35 feet" category.

In Areas 2C through 4A, estimated catcher vessel average prices tended to increase from 1995 to 1997 and then fall in 1998. These QS price movements occurred during a period of rising TACs. The overall Alaska TAC grew enormously during this period, leading to

[23]Standard IFQs were calculated by multiplying the amount of QS by the ratio of the area's total allowable catch to the amount of QS in the area's QS pool on January 31st of the year. This ratio was supplied by NMFS-RAM.

[24]Prices were not reported if they were calculated from less than four observations. In addition some prices with more than four observations were not reported when doing so would have made it possible to calculate confidential prices from other information in the report.

large increases in IFQs. IFQs rose from about 37.4 million pounds in 1995 to about 55.7 million pounds in 1998.

These TAC increases were accompanied by declines in ex-vessel prices in 1997 and 1998 however.[25] Prices rose somewhat from 1995 to 1996 (from $2.03 per pound to $2.24). However they declined from 1996 to 1997 (from $2.24 to $2.16) and they declined a great deal from 1997 to 1998 (from $2.16 to $1.27).

The ex-vessel price and quantity movements through 1997 were associated with large increases in gross revenues in the fishery. Estimated gross revenues rose from about $65.4 million in 1995 to about $106.1 million in 1997. These movements in gross revenues appear to have been reflected in rising QS prices through 1997. In 1998 the decline in ex-vessel prices offset the increases in harvest to lower the estimated gross revenues to approximately $65.0 million.[26] This decline in gross revenues could have been reflected in the 1998 decline in QS prices.

Table 4-5 provides associated annual QS price information for transfers in which QS was sold without any of the current year IFQ. To avoid confusion, prices are provided only in dollars per QS unit. There are fewer of these types of transactions than there are of transfers of QS with all or most IFQs. Prices can only be reported for four management areas. Note that, as before, prices in dollars per QS unit are not comparable across management areas due to the differences in the amount of IFQ per unit of QS.

The available estimates of average prices in Table 4-5 range from a low of $0.47 per QS unit in Area 3B in 1995 to a high of $2.07 per QS unit in Area 2C in 1997. In Areas 2C, 3A, and 4A, estimated average prices rose from one year to the next from 1995 to 1997 and then fell in 1998. In Area 3B they rose in each year.

Table 4-6 is similar to Table 4-5, differing by providing a more detailed breakout of price estimates. In Table 4-6 prices are shown by management area, vessel category, and year. Because of the small numbers of observations, prices cannot be reported for many of the cells.

In all of these tables there are several caveats associated with the reported statistics. The information provided on the NMFS transfer application forms can be ambiguous. The form does not explicitly differentiate between sale transfers and other transfers. Sale transfer observations used in the tables in this section were selected because prices were supplied. Other sale transfer observations, for which no prices were supplied, could not be used to estimate these prices.

[25]The prices discussed in this paragraph are CFEC estimates from Alaska Commercial Operators' Annual Reports on halibut delivered to Alaska processors. The 1998 estimate is preliminary.

[26]Author's estimate; the product of the estimated halibut harvests from Table 14-1 and the ex-vessel prices.

The transfer application forms from which pricing data were gathered also differed somewhat between years. For example, the 1995 form requested prices net of brokers' fees, while the 1996 form requested prices including fees.[27]

The associated current year IFQ is important in determining QS prices, but the ratio of IFQ to QS can vary between holdings within a management area due to underages and overages from the preceding year. In addition, only a portion of the associated current year IFQ might have been transferred with the QS. This makes it harder to calculate a meaningful average price per QS unit within a management area. This difficulty has been dealt with herein by calculating QS prices for QS sold with "approximately" the associated current year IFQ and for QS sold with no current year IFQ.

[27]Although the 1995 form requested prices "net" of brokers' fees, respondents typically reported their prices in a "gross" form which included brokers' fees. See Muse, Ben, Kurt Schelle, Elaine Dinneford, and Kurt Iverson, *Changes Under Alaska's Halibut IFQ Program, 1995*. CFEC 96-10N. Alaska Commercial Fisheries Entry Commission. Juneau, AK: 1996. page 155. Subsequent forms requested gross prices.

Table 4-3. Annual Prices for Halibut QS and IFQ Transfers by Area and Year

Area	Year	Mean Price $/IFQ	Stan Dev Price $/IFQ	Total IFQs Transferred Used for Pricing	Mean Price $/QS	Stan Dev Price $/QS	Total QS Transferred Used for Pricing	Number of Transactions Used for Pricing
2C	1995	7.58	1.21	996,874	1.14	0.18	6,629,554	315
	1996	9.13	2.71	681,056	1.37	0.41	4,539,813	289
	1997	11.37	2.53	517,715	1.92	0.43	3,057,477	211
	1998	10.14	2.11	220,894	1.79	0.37	1,253,771	106
3A	1995	7.37	1.44	1,792,912	0.79	0.15	16,658,196	355
	1996	8.40	4.07	1,582,609	0.90	0.44	14,724,748	352
	1997	9.78	2.45	1,276,525	1.32	0.33	9,443,198	294
	1998	8.55	3.04	666,649	1.20	0.43	4,743,875	157
3B	1995	6.53	1.40	225,912	0.44	0.10	3,323,670	88
	1996	7.88	2.30	323,160	0.53	0.16	4,760,536	165
	1997	8.58	2.53	605,744	1.43	0.42	3,634,335	157
	1998	7.92	1.78	169,833	1.62	0.36	832,225	49
4A	1995	5.64	2.07	114,616	0.74	0.27	873,519	56
	1996	6.68	1.50	160,899	0.87	0.20	1,230,691	65
	1997	6.67	2.79	383,112	1.35	0.56	1,889,914	90
	1998	6.39	1.98	71,280	1.54	0.48	295,358	29
4B	1995	6.14	1.05	34,716	1.23	0.21	173,523	5
	1996	5.03	0.86	51,769	1.00	0.17	260,336	7
	1997	5.15	1.71	294,051	1.54	0.51	980,663	30
	1998	7.24	1.68	94,579	2.18	0.51	313,790	11
4C	1997	6.29	0.50	48,681	0.91	0.07	336,313	8
	1998	5.67	1.09	33,902	1.14	0.22	169,265	7
4D	1996	C	C	27,358	C	C	237,858	3
	1997	5.85	1.63	82,294	0.99	0.28	485,517	11
	1998	6.07	0.97	49,986	1.39	0.22	218,677	11

Table 4-4. Annual Prices for Halibut QS and IFQ Transfers by Area, Vessel Class, and Year

Area	Vessel Class	Year	Mean Price $/IFQ	Stan Dev Price $/IFQ	Total IFQs Transferred Used for Pricing	Mean Price $/QS	Stan Dev Price $/QS	Total QS Transferred Used for Pricing	Number of Transactions Used for Pricing
2C	Freezer	1995	C	C	570	C	C	3,788	1
		1996	8.95	2.38	9,066	1.34	0.36	60,426	4
		1997	12.23	1.04	5,380	2.07	0.18	31,793	4
	GT 60 ft.	1995	8.17	1.09	16,916	1.23	0.16	112,499	4
		1996	8.77	1.71	63,204	1.32	0.26	421,218	21
		1997	13.28	2.85	25,080	2.25	0.48	148,232	10
		1998	10.21	1.47	8,202	1.79	0.25	46,668	9
	36-60 ft.	1995	7.78	1.15	763,157	1.17	0.17	5,075,250	195
		1996	9.51	1.74	450,753	1.43	0.26	3,004,306	155
		1997	11.73	2.58	376,533	1.99	0.44	2,223,068	117
		1998	10.72	1.94	157,964	1.89	0.34	895,887	66
	LE 35 ft.	1995	6.80	1.09	216,231	1.02	0.16	1,438,017	115
		1996	8.21	4.51	158,033	1.23	0.68	1,053,863	109
		1997	9.66	1.08	110,722	1.63	0.18	654,384	80
		1998	8.46	1.74	54,728	1.49	0.30	311,216	31
3A	Freezer	1995	C	C	8,338	C	C	77,472	1
		1996	9.95	1.13	18,047	1.07	0.12	167,902	4
		1997	C	C	15,287	C	C	113,088	3
		1998	C	C	65,009	C	C	462,366	2
	GT 60 ft.	1995	7.77	0.70	551,559	0.84	0.08	5,124,599	54
		1996	8.65	3.37	526,090	0.93	0.36	4,894,746	67
		1997	10.05	2.95	469,850	1.36	0.40	3,475,740	35
		1998	9.13	2.37	147,463	1.28	0.33	1,048,807	38
	36-60 ft.	1995	7.23	1.69	1,024,463	0.78	0.18	9,518,413	185
		1996	8.41	4.72	888,858	0.90	0.51	8,270,019	199
		1997	9.95	2.06	654,926	1.34	0.28	4,844,878	155
		1998	8.18	2.41	307,403	1.15	0.34	2,187,960	63
	LE 35 ft.	1995	6.99	1.29	208,552	0.75	0.14	1,937,712	115
		1996	7.31	1.20	149,614	0.79	0.13	1,392,081	82
		1997	8.01	1.17	136,462	1.08	0.16	1,009,492	101
		1998	6.43	2.60	146,774	0.90	0.37	1,044,742	54
3B	Freezer	1996	9.70	2.03	7,031	0.66	0.14	103,574	5
		1997	C	C	1,419	C	C	8,498	2
	GT 60 ft.	1995	6.87	0.77	93,917	0.47	0.05	1,381,717	39
		1996	8.11	1.46	144,638	0.55	0.10	2,130,598	69
		1997	9.42	2.58	321,296	1.57	0.43	1,924,522	30
		1998	8.36	1.25	46,122	1.71	0.25	225,996	20
	36-60 ft.	1995	6.28	1.69	129,860	0.43	0.11	1,910,546	48
		1996	7.77	2.87	154,306	0.53	0.20	2,273,206	77
		1997	7.67	2.17	246,500	1.28	0.36	1,482,490	99
		1998	8.09	1.60	108,517	1.65	0.33	531,772	18
	LE 35 ft.	1995	C	C	2,135	C	C	31,407	1
		1996	6.18	1.02	17,185	0.42	0.07	253,158	14
		1997	7.42	1.29	36,529	1.24	0.22	218,825	26
		1998	5.37	2.29	15,194	1.10	0.47	74,457	11

(Continued)

Table 4-4. Annual Prices for Halibut QS and IFQ Transfers by Area, Vessel Class, and Year

Area	Vessel Class	Year	Mean Price $/IFQ	Stan Dev Price $/IFQ	Total IFQs Transferre Used for Pricing	Mean Price $/QS	Stan Dev Price $/QS	Total QS Transferred Used for Pricing	Number of Transactions Used for Pricing
4A	Freezer	1996	C	C	8,502	C	C	65,033	2
		1997	C	C	526	C	C	2,590	3
	GT 60 ft.	1995	6.35	0.37	16,000	0.83	0.05	121,934	28
		1996	7.02	1.34	64,061	0.92	0.18	489,996	32
		1997	C	C	195,214	C	C	962,981	19
		1998	8.32	0.90	7,449	2.01	0.22	30,861	15
	36-60 ft.	1995	5.47	2.32	87,749	0.72	0.30	668,772	21
		1996	6.55	1.57	80,052	0.86	0.20	612,309	23
		1997	6.46	1.85	151,855	1.31	0.38	749,127	43
		1998	7.14	1.66	41,099	1.72	0.40	170,303	10
	LE 35 ft.	1995	5.96	0.73	10,867	0.78	0.10	82,813	7
		1996	C	C	8,284	C	C	63,353	8
		1997	5.41	1.34	35,517	1.10	0.27	175,216	25
		1998	4.40	0.89	22,732	1.06	0.21	94,194	4
4B	Freezer	1997	C	C	16,846	C	C	56,183	1
		1998	C	C	31,740	C	C	105,248	1
	GT 60 ft.	1995	C	C	25,118	C	C	125,551	3
		1996	C	C	33,607	C	C	169,002	5
		1997	5.41	1.91	196,074	1.62	0.57	653,912	17
		1998	C	C	35,195	C	C	116,706	5
	36-60 ft.	1995	C	C	9,598	C	C	47,972	2
		1996	C	C	16,880	C	C	84,886	1
		1997	C	C	77,981	C	C	260,065	10
		1998	6.42	1.55	27,644	1.93	0.46	91,836	5
	LE 35 ft.	1996	C	C	1,282	C	C	6,448	1
		1997	C	C	3,150	C	C	10,503	2
4C	GT 60 ft.	1997	C	C	31,746	C	C	220,416	5
		1998	C	C	12,532	C	C	62,568	3
	36-60 ft.	1997	C	C	16,935	C	C	115,897	3
		1998	C	C	18,623	C	C	92,984	3
	LE 35 ft.	1998	C	C	2,747	C	C	13,713	1
4D	Freezer	1996	C	C	17,762	C	C	154,426	1
		1997	C	C	20,759	C	C	122,473	2
	GT 60 ft.	1996	C	C	9,596	C	C	83,432	2
		1997	6.58	1.02	58,301	1.12	0.17	343,960	7
		1998	C	C	45,365	C	C	198,463	9
	36-60 ft.	1997	C	C	3,234	C	C	19,084	2
		1998	C	C	4,621	C	C	20,214	2

Table 4-5. Annual Prices for Halibut QS-Only Transfers by Area and Year

Area	Year	Mean Price $/QS	Stan Dev Price $/QS	Total QS Transferred Used for Pricing	Number of Transactions Used for Pricing
2C	1995	1.03	0.22	751,236	25
	1996	1.28	0.24	1,484,304	43
	1997	2.07	0.38	480,565	24
	1998	1.46	0.36	228,831	11
3A	1995	0.74	0.25	2,068,199	38
	1996	0.85	0.21	4,439,006	82
	1997	1.46	0.29	2,098,195	33
	1998	1.07	0.32	1,532,616	32
3B	1995	0.47	0.09	892,536	10
	1996	0.59	0.12	919,400	16
	1997	1.35	0.48	760,885	21
	1998	1.59	0.18	319,637	4
4A	1995	0.60	0.18	196,536	8
	1996	C	C	267,658	3
	1997	1.25	0.43	82,220	6
	1998	1.24	0.18	90,756	4
4B	1997	C	C	56,991	1
4C	1998	C	C	44,370	1
4D	1996	C	C	29,678	1
	1997	C	C	22,891	1

Table 4-6. Annual Prices for Halibut QS-Only Transfers by Area, Vessel Class, and Year

Area	Vessel Class	Year	Mean Price $/QS	Stan Dev Price $/QS	Total QS Transacted Used for Pricing	Number of Transactions Used for Pricing
2C	Freezer	1996	C	C	41,718	2
		1998	C	C	28,365	1
	GT 60 ft.	1996	C	C	48,234	1
		1997	C	C	98,391	2
		1998	C	C	14,715	1
	36-60 ft.	1995	1.09	0.15	643,143	21
		1996	1.35	0.22	1,102,743	27
		1997	2.07	0.38	330,029	18
		1998	1.32	0.32	146,894	6
	LE 35 ft.	1995	0.70	0.24	108,093	4
		1996	C	C	291,609	13
		1997	C	C	52,145	4
		1998	C	C	38,857	3
3A	Freezer	1996	C	C	42,151	1
	GT 60 ft.	1995	0.79	0.35	762,830	6
		1996	C	C	946,214	6
		1997	C	C	1,245,500	14
		1998	C	C	346,290	8
	36-60 ft.	1995	0.71	0.16	1,178,404	23
		1996	0.85	0.20	2,820,850	51
		1997	1.38	0.22	824,939	18
		1998	1.06	0.25	1,036,518	21
	LE 35 ft.	1995	0.70	0.10	126,965	9
		1996	0.73	0.16	629,791	24
		1997	C	C	27,756	1
		1998	C	C	149,808	3
3B	Freezer	1996	C	C	56,113	1
	GT 60 ft.	1995	C	C	201,892	1
		1996	C	C	469,591	6
		1997	C	C	196,834	5
		1998	C	C	62,350	2
	36-60 ft.	1995	0.49	0.08	613,999	6
		1996	0.53	0.12	385,783	7
		1997	1.39	0.46	552,392	14
		1998	C	C	232,499	1
	LE 35 ft.	1995	C	C	76,645	3
		1996	C	C	7,913	2
		1997	C	C	11,659	2
		1998	C	C	24,788	1

(Continued)

Table 4-6. Annual Prices for Halibut QS-Only Transfers by Area, Vessel Class, and Year

Area	Vessel Class	Year	Mean Price $/QS	Stan Dev Price $/QS	Total QS Transacted Used for Pricing	Number of Transactions Used for Pricing
4A	Freezer	1996	C	C	107,418	1
	GT 60 ft.	1995	C	C	106,692	2
		1996	C	C	33,278	1
		1997	C	C	16,988	2
		1998	C	C	42,391	1
	36-60 ft.	1995	C	C	49,669	3
		1996	C	C	126,962	1
		1997	C	C	56,088	3
		1998	C	C	35,630	2
	LE 35 ft.	1995	C	C	40,175	3
		1997	C	C	9,144	1
		1998	C	C	12,735	1
4B	GT 60 ft.	1997	C	C	56,991	1
4C	GT 60 ft.	1998	C	C	44,370	1
4D	Freezer	1997	C	C	22,891	1
	GT 60 ft.	1996	C	C	29,678	1

4.4 Estimated QS Prices

Annual average QS prices by management area, vessel category, and year are reported in Table 4-4 of this chapter. However, the available data do not permit calculation and reporting of prices for many of these combinations of categories. For example, the price for "less than or equal to 35 feet" catcher vessels in Area 3B cannot be reported in 1995. In some combinations of categories no report can be made because there were no transfers, and in others there were too few transfers to meet confidentiality reporting standards.

There would be even more gaps if prices were estimated by block status, block size, and quarter, as well as by management area, vessel class, and year, since there would be fewer observations in each combination of categories.

To provide a more detailed set of QS prices for the 1995-1998 period, a statistical model of QS prices was estimated using available data for Areas 2C, 3A, 3B, and 4A.[28] This model was then used to estimate prices for QS by management area (for Areas 2C, 3A, 3B, and 4A), vessel class, block status, size of block, and quarter for 1995-1998. These price estimates are reported in Table 4-7. The estimates were confined to these four areas because there were not enough observations in the other areas (4B, 4C, 4D, and 4E) to develop a meaningful model.

The approach in this section is similar to an approach used to estimate prices in an earlier CFEC report on the halibut IFQ program.[29] There are differences, however. The data set has changed with the addition of observations for 1998 in the current analysis and the set of variables has changed with the addition of four dummy variables for the four quarters in 1998. For these reasons, the price estimates in this report differ somewhat from those in the earlier report.

The dependent variable in the model used in this report was the price for QS expressed in dollars per unit of QS. The following explanatory variables were used in the model:

dummy variables for vessel class	Separate dummy variables were used for the three catcher vessel categories of "over 60 feet," "36 to 60 feet," and "35 feet or less." These estimated coefficients show how average QS prices increased or decreased relative to freezer vessel QS prices when all other factors are the same.

[28]The parameters of this model were estimated using OLS regression on 3,486 observations. The QS price in "dollars per unit of QS" was the dependent variable. The explanatory variables are described in a list starting on this page. The regression R-squared was 0.56. The estimated coefficients had expected signs and the important coefficients were statistically significant. The results are summarized in more detail in the CFEC report, *Regression Analysis of Alaska Halibut and Sablefish QS Prices, 1995-1998*., by Ben Muse. CFEC 99-6B; Alaska Commercial Fisheries Entry Commission. Juneau: November 1999.

[29]Dinneford, Elaine. Kurt Iverson, Ben Muse and Kurt Schelle. *Changes Under Alaska's Halibut IFQ Program, 1995 to 1997.* Alaska Commercial Fisheries Entry Commission. Juneau: November 1998. pages 48-56.

the natural log of the amount of blocked QS transferred	Prices were hypothesized to be higher for QS in larger blocks. This variable was assigned a value of zero for unblocked QS.
the natural log of the amount of unblocked QS transferred	Prices were also hypothesized to be higher for QS in larger unblocked transactions. This variable was assigned a value of zero for blocked QS.
a dummy variable indicating whether or not QS was blocked	QS in blocks were assumed to have lower prices, all other things equal. This dummy variable took on a value of one if the QS in the transaction was blocked, and a value of zero if it was not.
standard pounds of IFQ per QS unit	This is the ratio of pounds of IFQ per QS unit for the area and year. This is the inverse of the standard ratios published by RAM. This variable has the same value for all transactions in an area during a year.
ratio of "the difference between the standard pounds of IFQ and the actual number of pounds of IFQ transferred" to "QS units transferred"	The numerator of this ratio is the difference between the standard IFQ associated with the QS being transferred in the transaction, and the actual IFQs being transferred in the transaction. The denominator is the number of units of QS being transferred in the transaction.
separate dummy variables for the 2nd through the 16th quarters of the four year time period	Dummy variables were introduced for each quarter except the first quarter of 1995. These variables were intended to capture quarterly QS price changes due to changes in market conditions relative to the first quarter of 1995.

The simulation model produced price estimates in "dollars per QS unit." Since the number of QS units per pound of IFQ differed from area to area, and from year to year, prices were converted to "dollars per pound of IFQ" for Table 4-7. This was done to permit comparisons of prices across management areas.

This conversion was done by multiplying the price in "dollars per QS unit" by the "QS units per pound of IFQ" in the relevant management area and year. These prices in "dollars per pound of IFQ" are reported in Table 4-7. The "QS units per pound of IFQ" ratios used to make these price conversions were based on the standard ratios for each management area published by NMFS-RAM. These ratios are calculated by dividing the total TACs in the different management areas by the QS units available in those management areas on January 31 of the year.

The amount of QS contained and transferred in a block can vary widely. For simulation purposes, blocks were defined to be either large, medium, or small. Large blocks were defined to have 13,000 pounds of current-year IFQ, medium blocks were defined to have 6,000 pounds of current-year IFQ, and small blocks were defined to have 1,000 pounds of current-year IFQ. Unblocked transfers were assumed to have 5,500 pounds of IFQ. These size categories were chosen after an examination of the distribution of actual block size holdings at the end of 1996 and after a review of the size distribution of blocks transferred during 1995 and 1996. The unblocked transfer sizes are approximately equal to the mean transfer size during 1995 and 1996. These block sizes, although constant in terms of pounds of IFQ, were associated with different units of QS in different areas and years since the QS-to-IFQ ratios varied between areas and between years within an area.

Comparing estimated prices (Table 4-7) and average prices (Table 4-4)

Average prices for management area, vessel category, and year were compared with estimates from the model. A comparison of Tables 4-4 and 4-7 shows that about 80% of the time when a comparison can be made between area and vessel class, the estimated prices fall within the range of average prices. About half the exceptions occur in Area 2C, where the average price is above the estimated price range in five of the 14 comparisons that can be made, and about half fall in Area 4A where the average price falls below the estimated average price in four of the 10 comparisons that can be made.

While the comparison of average prices in Table 4-4 with somewhat similar price estimates from the model shown in Table 4-7 is interesting, the reader should be aware that there can be subtle differences in what the prices represent. The calculations behind the prices in Table 4-7 are based on the assumption that all the estimated associated IFQ pounds for the year have been sold with the QS. In contrast, the averages in Table 4-4 were generated from observations with "almost all" of the IFQs transferred with the QS. This means that the transferred IFQ was within 5% of the "standard IFQ" for that area and the number of QS in the transaction. Further, the average prices in Tables 4-3 and 4-4 are aggregates of prices for transactions in different quarters and for transactions of different block status or size. The prices in Table 4-7 are broken out for more detailed category combinations and for blocks or unblocked transfers of a given size.

Price Changes Through Time

Table 4-7 shows estimated QS prices, measured in dollars per pound of IFQ. Prices in the last quarter of 1998 were generally lower than prices in the first quarter of 1995. This is a larger apparent price decline than that suggested in Table 4-3 which summarizes average annual (rather than quarterly) QS prices. Price fluctuations from quarter-to-quarter within each of the four years indicate no consistent pattern.

Blocking of QS

A feature which the NPFMC added to the halibut IFQ program was the "blocking" of all initial allocations of QS that translated into less than 20,000 pounds of a hypothetical IFQ for an area.[30] Under the program rules, blocked halibut QS must be sold as a unit. A person is only allowed to hold two blocks of QS in an area. If a person holds any unblocked QS in the area, then the person is only allowed to hold one block of QS. In 1995 and through August, 1996 blocked QS often could not be leased because of the 10% leasing restriction. From September, 1996, regulations became effective allowing the leasing of IFQ independently of QS.[31]

The purpose of the blocking provision was to make a portion of the QS relatively unattractive to persons who wanted to put together more full-time halibut operations. Proponents hoped the block provisions would ensure there would always be QS available to a part-time fleet of small operators. The proponents felt this would help maintain some of the diversity of the fleet that existed under open access and thereby make the IFQ program less disruptive to isolated Alaska fishing communities. Proponents also predicted that the blocked QS would sell for a lower price per QS unit and hence would be more affordable for a fleet of small part-time operators, as well as new entrants to the fishery.

The results from the model suggest that blocked QS did sell for less than unblocked QS over the first four years of the program and that smaller blocks sold for less than larger blocks. Estimated prices differed by the block status and the size of block. Unblocked QS had the highest prices. If the QS was blocked, the estimated price was higher for larger blocks. Unblocked QS had higher estimated prices per QS unit than larger blocks despite the fact that in the simulations large blocks are assumed to have 13,000 QS and unblocked transactions are assumed to be for 5,500 QS.[32] For example, the estimated prices for Area 3A "greater than 60 feet" catcher vessel QS in the first quarter of 1995 were $8.87 per pound of IFQ for unblocked QS, $7.59 per pound for QS in large blocks, $7.00 per pound for QS in medium blocks, and $5.62 per pound for QS in small blocks. Similar results occurred for all other area, vessel category, and quarter combinations.

The regression model used to generate these results had a statistically significant negative coefficient on the dummy variable indicating whether or not QS was blocked, and statistically significant positive coefficients on the variables of the size of the block (if blocked) and the number of units of QS transferred (if unblocked). Thus the model indicated that both blocked and unblocked QS had a higher average price per QS unit the greater the amount of QS involved in the transaction.

[30]As noted earlier, the range of QS holdings were blocked if they were worth less than 20,000 pounds of IFQ, given the QS pool as of October 17, 1994 and the 1994 TAC for the area. See 50 CFR 679.40(a).

[31]See 50 CFR 679.41 (h)(2).

[32]These are prices per unit of QS, not prices paid for a block of QS or for a "package" of units of unblocked QS.

Management Area

It is difficult to generalize about differences in estimated prices by management area. Prices in one area could be greater or less than corresponding prices in another area depending on the year and quarter.

Perhaps the most important "area-specific" variable in the model used to generate the price estimates was a variable for the number of "pounds of IFQ per unit of QS" in an area and in a year. This variable was constant for all transactions in an area during a year. The coefficient for this variable had a positive sign, indicating that when the pounds of IFQ per QS unit increased, the average QS price also increased, especially when the price was measured in dollars per QS unit (this did not necessarily hold for QS prices measured in dollars per pound of IFQ).

Vessel Classes

Vessel classes could affect the price of QS. Freezer and catcher vessels produce different products. Catcher vessels of different sizes could produce in different volumes for different markets. Catcher vessel size could also affect operating characteristics, including ability to operate in different weather conditions, fixed costs, variable material costs, and vessel, skipper, and crew shares. Finally, new "fish down" rules could impact prices (these were discussed in Chapter 3). The large number of considerations could affect QS from different vessel classes in different ways making it difficult to predict how vessel class should affect QS prices.

Estimated QS prices were highest for the "36 to 60 feet" catcher vessel QS in all of the management areas. The "less than or equal to 35 feet" catcher vessel QS had the next highest average QS prices, followed by the "freezer" vessel class. "Catcher vessels greater than 60 feet had the lowest QS prices. This relationship held for unblocked QS, and large, medium, and small blocks of QS. However, the model relationships should be viewed with caution since the model did not allow variation in the vessel class estimated parameter coefficients across areas and the estimated parameters were not statistically significant.

These results contrast with those in Table 4-4. The prices in dollars per IFQ in Table 4-4 vary positively with catcher vessel size class: the highest catcher vessel QS price was for "catcher vessels greater than 60 feet". However, in Table 4-7 this same vessel size category had the lowest catcher vessel QS prices. Therefore, the model may not be properly capturing QS price distinction by vessel category. The vessel class dummy variables from the model on which the simulation was based were not statistically significant. The model is described in detail in the CFEC report, *Regression Analysis of Alaska Halibut and Sablefish QS Prices, 1995-1998,* by Ben Muse.

Table 4-7. Estimated Prices Per Unit of Halibut QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
2C	Freezer	1995	1	8.43	7.42	6.99	6.01
			2	8.22	7.21	6.78	5.80
			3	8.08	7.06	6.64	5.65
			4	8.37	7.35	6.93	5.95
		1996	1	8.35	7.33	6.91	5.92
			2	8.79	7.78	7.35	6.36
			3	9.16	8.14	7.72	6.73
			4	9.74	8.73	8.30	7.32
		1997	1	8.65	7.72	7.34	6.46
			2	9.60	8.67	8.30	7.42
			3	10.04	9.11	8.73	7.86
			4	10.63	9.70	9.32	8.45
		1998	1	10.24	9.34	8.98	8.14
			2	8.79	7.88	7.52	6.68
			3	8.34	7.44	7.07	6.24
			4	7.29	6.39	6.02	5.18
2C	GT 60 feet	1995	1	8.28	7.27	6.84	5.86
			2	8.07	7.06	6.63	5.65
			3	7.93	6.91	6.49	5.50
			4	8.22	7.20	6.78	5.80
		1996	1	8.20	7.18	6.76	5.77
			2	8.64	7.63	7.20	6.21
			3	9.01	7.99	7.57	6.58
			4	9.59	8.58	8.15	7.17
		1997	1	8.52	7.58	7.21	6.33
			2	9.47	8.54	8.16	7.29
			3	9.91	8.98	8.60	7.73
			4	10.50	9.57	9.19	8.32
		1998	1	10.12	9.21	8.85	8.01
			2	8.66	7.75	7.39	6.55
			3	8.21	7.31	6.95	6.11
			4	7.16	6.26	5.90	5.06
2C	35 to 60 feet	1995	1	8.87	7.86	7.43	6.45
			2	8.66	7.65	7.22	6.24
			3	8.52	7.51	7.08	6.10
			4	8.81	7.80	7.37	6.39
		1996	1	8.79	7.78	7.35	6.37
			2	9.24	8.22	7.79	6.81
			3	9.60	8.59	8.16	7.18
			4	10.19	9.17	8.75	7.76
		1997	1	9.04	8.11	7.73	6.86
			2	10.00	9.07	8.69	7.81
			3	10.44	9.50	9.13	8.25
			4	11.03	10.09	9.72	8.84
		1998	1	10.62	9.72	9.35	8.52
			2	9.16	8.26	7.90	7.06
			3	8.72	7.81	7.45	6.61
			4	7.67	6.76	6.40	5.56

(Continued)

Table 4-7. Estimated Prices Per Unit of Halibut QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
2C	LE 35 feet	1995	1	8.54	7.52	7.10	6.11
			2	8.33	7.31	6.89	5.90
			3	8.18	7.17	6.74	5.76
			4	8.48	7.46	7.04	6.05
		1996	1	8.46	7.44	7.01	6.03
			2	8.90	7.88	7.46	6.47
			3	9.27	8.25	7.82	6.84
			4	9.85	8.83	8.41	7.42
		1997	1	8.74	7.81	7.43	6.56
			2	9.70	8.77	8.39	7.52
			3	10.14	9.21	8.83	7.95
			4	10.73	9.79	9.42	8.54
		1998	1	10.33	9.43	9.07	8.23
			2	8.88	7.97	7.61	6.77
			3	8.43	7.53	7.17	6.33
			4	7.38	6.48	6.11	5.28
3A	Freezer	1995	1	9.08	7.80	7.21	5.83
			2	8.79	7.51	6.91	5.54
			3	8.59	7.31	6.71	5.34
			4	9.00	7.71	7.12	5.75
		1996	1	8.97	7.68	7.09	5.71
			2	9.59	8.30	7.71	6.33
			3	10.10	8.82	8.22	6.85
			4	10.91	9.63	9.04	7.66
		1997	1	9.10	8.01	7.54	6.44
			2	10.30	9.21	8.73	7.64
			3	10.85	9.76	9.28	8.19
			4	11.59	10.49	10.02	8.93
		1998	1	11.11	10.04	9.59	8.54
			2	9.28	8.21	7.76	6.71
			3	8.72	7.66	7.20	6.15
			4	7.40	6.34	5.88	4.83
3A	GT 60 feet	1995	1	8.87	7.59	7.00	5.62
			2	8.58	7.30	6.70	5.33
			3	8.38	7.10	6.50	5.13
			4	8.79	7.51	6.91	5.54
		1996	1	8.76	7.47	6.88	5.50
			2	9.38	8.09	7.50	6.12
			3	9.89	8.61	8.01	6.64
			4	10.70	9.42	8.83	7.45
		1997	1	8.94	7.84	7.37	6.28
			2	10.13	9.04	8.57	7.47
			3	10.68	9.59	9.12	8.02
			4	11.42	10.33	9.85	8.76
		1998	1	10.95	9.88	9.43	8.38
			2	9.12	8.05	7.60	6.55
			3	8.56	7.50	7.04	5.99
			4	7.24	6.18	5.72	4.67

(Continued)

Table 4-7. Estimated Prices Per Unit of Halibut QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
3A	35 to 60 feet	1995	1	9.70	8.42	7.83	6.45
			2	9.41	8.13	7.53	6.16
			3	9.21	7.93	7.33	5.96
			4	9.62	8.33	7.74	6.37
		1996	1	9.59	8.30	7.71	6.33
			2	10.21	8.92	8.33	6.95
			3	10.72	9.44	8.84	7.47
			4	11.53	10.25	9.66	8.28
		1997	1	9.60	8.50	8.03	6.94
			2	10.79	9.70	9.23	8.13
			3	11.34	10.25	9.78	8.68
			4	12.08	10.98	10.51	9.42
		1998	1	11.58	10.52	10.06	9.01
			2	9.75	8.69	8.23	7.18
			3	9.20	8.13	7.68	6.62
			4	7.88	6.81	6.36	5.31
3A	LE 35 feet	1995	1	9.23	7.95	7.36	5.98
			2	8.94	7.66	7.06	5.69
			3	8.74	7.45	6.86	5.49
			4	9.15	7.86	7.27	5.90
		1996	1	9.12	7.83	7.24	5.86
			2	9.73	8.45	7.86	6.48
			3	10.25	8.96	8.37	6.99
			4	11.06	9.78	9.19	7.81
		1997	1	9.22	8.13	7.66	6.56
			2	10.42	9.32	8.85	7.76
			3	10.97	9.87	9.40	8.31
			4	11.71	10.61	10.14	9.04
		1998	1	11.22	10.16	9.70	8.65
			2	9.39	8.33	7.87	6.82
			3	8.84	7.77	7.32	6.26
			4	7.52	6.45	6.00	4.95
3B	Freezer	1995	1	10.50	8.77	7.83	5.65
			2	10.04	8.31	7.37	5.19
			3	9.72	7.99	7.05	4.87
			4	10.37	8.63	7.70	5.52
		1996	1	10.32	8.59	7.65	5.47
			2	11.30	9.57	8.63	6.45
			3	12.12	10.38	9.44	7.26
			4	13.41	11.67	10.73	8.55
		1997	1	8.67	7.73	7.35	6.46
			2	9.64	8.70	8.32	7.43
			3	10.09	9.15	8.76	7.88
			4	10.68	9.74	9.36	8.47
		1998	1	9.79	8.97	8.66	7.94
			2	8.53	7.71	7.40	6.68
			3	8.14	7.33	7.02	6.29
			4	7.24	6.42	6.11	5.39

(Continued)

Table 4-7. Estimated Prices Per Unit of Halibut QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
3B	GT 60 feet	1995	1	10.17	8.44	7.50	5.32
			2	9.71	7.98	7.04	4.86
			3	9.39	7.66	6.72	4.54
			4	10.04	8.30	7.37	5.19
		1996	1	9.99	8.25	7.31	5.14
			2	10.97	9.23	8.29	6.12
			3	11.78	10.05	9.11	6.93
			4	13.07	11.34	10.40	8.22
		1997	1	8.54	7.60	7.21	6.33
			2	9.51	8.57	8.18	7.30
			3	9.95	9.01	8.63	7.74
			4	10.55	9.61	9.22	8.34
		1998	1	9.68	8.86	8.55	7.83
			2	8.42	7.60	7.29	6.57
			3	8.03	7.22	6.91	6.18
			4	7.13	6.31	6.00	5.28
3B	35 to 60 feet	1995	1	11.48	9.75	8.81	6.63
			2	11.02	9.29	8.35	6.17
			3	10.70	8.97	8.03	5.85
			4	11.35	9.61	8.68	6.50
		1996	1	11.30	9.57	8.63	6.45
			2	12.28	10.55	9.61	7.43
			3	13.10	11.36	10.42	8.24
			4	14.39	12.65	11.71	9.53
		1997	1	9.07	8.13	7.75	6.86
			2	10.04	9.10	8.72	7.83
			3	10.49	9.54	9.16	8.28
			4	11.08	10.14	9.76	8.87
		1998	1	10.11	9.30	8.99	8.26
			2	8.85	8.04	7.73	7.00
			3	8.47	7.66	7.34	6.62
			4	7.56	6.75	6.44	5.71
3B	LE 35 feet	1995	1	10.74	9.00	8.07	5.89
			2	10.28	8.54	7.60	5.43
			3	9.96	8.22	7.29	5.11
			4	10.61	8.87	7.93	5.76
		1996	1	10.56	8.82	7.88	5.70
			2	11.54	9.80	8.86	6.68
			3	12.35	10.61	9.67	7.50
			4	13.64	11.90	10.96	8.79
		1997	1	8.77	7.83	7.44	6.56
			2	9.74	8.80	8.41	7.53
			3	10.18	9.24	8.86	7.97
			4	10.78	9.84	9.46	8.57
		1998	1	9.87	9.05	8.74	8.02
			2	8.61	7.79	7.48	6.76
			3	8.22	7.41	7.10	6.37
			4	7.31	6.50	6.19	5.46

(Continued)

Table 4-7. Estimated Prices Per Unit of Halibut QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
4A	Freezer	1995	1	8.67	7.55	7.06	5.93
			2	8.43	7.31	6.82	5.69
			3	8.26	7.14	6.66	5.53
			4	8.60	7.48	6.99	5.86
		1996	1	8.58	7.45	6.97	5.84
			2	9.08	7.96	7.48	6.34
			3	9.51	8.39	7.90	6.77
			4	10.18	9.06	8.57	7.44
		1997	1	8.36	7.54	7.22	6.50
			2	9.15	8.34	8.02	7.29
			3	9.52	8.70	8.39	7.66
			4	10.01	9.20	8.88	8.15
		1998	1	9.34	8.63	8.36	7.75
			2	8.28	7.56	7.30	6.68
			3	7.96	7.24	6.97	6.36
			4	7.19	6.47	6.20	5.59
4A	GT 60 feet	1995	1	8.49	7.38	6.89	5.76
			2	8.25	7.14	6.65	5.52
			3	8.09	6.97	6.49	5.36
			4	8.42	7.31	6.82	5.69
		1996	1	8.40	7.28	6.79	5.66
			2	8.91	7.79	7.30	6.17
			3	9.33	8.21	7.73	6.59
			4	10.00	8.88	8.40	7.26
		1997	1	8.25	7.43	7.11	6.38
			2	9.04	8.23	7.91	7.18
			3	9.41	8.59	8.28	7.55
			4	9.90	9.08	8.77	8.04
		1998	1	9.25	8.53	8.27	7.66
			2	8.19	7.47	7.20	6.59
			3	7.86	7.14	6.88	6.27
			4	7.09	6.38	6.11	5.50
4A	35 to 60 feet	1995	1	9.17	8.06	7.57	6.44
			2	8.93	7.82	7.33	6.20
			3	8.77	7.65	7.16	6.04
			4	9.10	7.99	7.50	6.37
		1996	1	9.09	7.96	7.48	6.35
			2	9.59	8.47	7.98	6.85
			3	10.02	8.89	8.41	7.28
			4	10.69	9.56	9.08	7.95
		1997	1	8.69	7.87	7.55	6.82
			2	9.48	8.67	8.35	7.62
			3	9.85	9.03	8.72	7.99
			4	10.34	9.52	9.21	8.48
		1998	1	9.62	8.90	8.64	8.03
			2	8.56	7.84	7.57	6.96
			3	8.23	7.51	7.25	6.64
			4	7.46	6.74	6.48	5.87

(Continued)

Table 4-7. Estimated Prices Per Unit of Halibut QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
4A	LE 35 feet	1995	1	8.79	7.67	7.18	6.06
			2	8.55	7.43	6.94	5.82
			3	8.38	7.27	6.78	5.65
			4	8.72	7.60	7.11	5.99
		1996	1	8.70	7.58	7.09	5.96
			2	9.21	8.09	7.60	6.47
			3	9.63	8.51	8.02	6.89
			4	10.30	9.18	8.69	7.56
		1997	1	8.44	7.62	7.30	6.57
			2	9.23	8.42	8.10	7.37
			3	9.60	8.78	8.47	7.74
			4	10.09	9.27	8.96	8.23
		1998	1	9.41	8.69	8.43	7.82
			2	8.35	7.63	7.36	6.75
			3	8.02	7.30	7.04	6.43
			4	7.25	6.54	6.27	5.66