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 consolidations 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 three years of the program.

Section 4.1 presents data on the volume and rate of permanent QS transfers, and on the number and rate of QS holder transfers, by management area during 1995, 1996 and 1997.

Section 4.2 presents similar data on QS transfer rates and on QS holder transfer rates, by management area *and* vessel category during 1995, 1996, and 1997.

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

Average prices for many management area, vessel category, and year combinations cannot be presented because of a lack of data. Section 4.4 presents QS price estimates for 1995 through 1997 based upon a statistical model. This technique allows a very detailed breakouts of prices. In this section price estimates are provided by management area, vessel category, block status, size of block, and quarter.

4.1 Transfer Rates by Area

Table 4-1 provides data on QS transfer rates and on QS holder transfer rates by management area. Data are provided for 1995, 1996, 1997, and for all three years together. The table 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 rate is the ratio of QS transferred to QS held at the end of the year, expressed in percentage form. 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 three years combined, the QS transfer rates range from a low of 7.0% in the Bering Sea Area, to a high of 9.9% in the Aleutians Area. No single area appeared to consistently have the lowest or highest QS transfer rate during the different years.

The QS transfer rates for the three year period tended to be slightly lower than transfer rates for Alaska limited entry permits. Over the years 1975 to 1997, 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%.[1]

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 three years combined, these rates ranged from a low of 7.7% in the Bering Sea Area to a high of 20.1% in the Southeast Area. In the Southeast, West Yakutat, Central Gulf and Western Gulf Areas the "three-year" QS holder transfer rates are at least two times the QS transfer rates. In the Bering Sea and Aleutian Areas the QS holder transfer rates are only slightly above the QS transfer rates.

[1]Iverson, Kurt, Al Tingley, and Elaine Dinneford. *Executive Summary. Changes in the Distribution of Alaska's Commercial Fisheries Entry Permits, 1975-1997.* Alaska Commercial Fisheries Entry Commission. CFEC 98-5N-EXEC. Juneau: June, 1998. page 4. However, transfer rates of State of Alaska limited entry permits and sablefish QS units are not strictly comparable. Limited entry permits provide an all-or-nothing access to the fishery, and leasing is prohibited, except in emergency cases. Sablefish QS units can be transferred in small amounts by persons who remain in the fishery and some sablefish QS units can be leased.

Table 4-1. Sablefish 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 %
Southeast	1995	65,352,762	5,897,820	9.0	656	141	21.5
	1996	65,829,475	5,784,397	8.8	608	120	19.7
	1997	65,938,762	5,115,313	7.8	553	105	19.0
	All Yrs	197,120,999	16,797,530	8.5	1,817	366	20.1
W. Yakutat	1995	52,597,269	3,278,470	6.2	420	69	16.4
	1996	53,028,226	3,851,410	7.3	392	75	19.1
	1997	53,116,620	4,143,981	7.8	350	83	23.7
	All Yrs	158,742,115	11,273,861	7.1	1,162	227	19.5
C. Gulf	1995	107,635,310	7,833,476	7.3	592	98	16.6
	1996	109,997,846	9,401,578	8.5	553	95	17.2
	1997	110,873,858	11,371,524	10.3	496	116	23.4
	All Yrs	328,507,014	28,606,578	8.7	1,641	309	18.8
W. Gulf	1995	35,196,842	1,908,499	5.4	217	27	12.4
	1996	35,793,302	3,493,549	9.8	211	22	10.4
	1997	35,935,239	2,537,045	7.1	197	44	22.3
	All Yrs	106,925,383	7,939,093	7.4	625	93	14.9
Bering Sea	1995	17,598,802	1,003,527	5.7	138	13	9.4
	1996	18,421,029	1,526,743	8.3	135	8	5.9
	1997	18,602,398	1,266,994	6.8	131	10	7.6
	All Yrs	54,622,229	3,797,264	7.0	404	31	7.7
Aleutians	1995	29,863,329	2,143,624	7.2	125	14	11.2
	1996	31,103,860	2,062,710	6.6	130	9	6.9
	1997	31,518,176	4,917,176	15.6	124	17	13.7
	All Yrs	92,485,365	9,123,510	9.9	379	40	10.6

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, 1996, 1997, and for all three 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 rate is the ratio of QS transferred to total QS held at the end of the year, expressed in percentage form. 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 could diverge widely between vessel categories within an area. For example, over the three year period the average QS transfer rate for catcher vessels "greater than 60 feet" in the Aleutians Islands area was only 4.9%, while the rate for catcher vessels "60 feet or less" was 26.0%. Similarly, in the Bering Sea area, the QS transfer rate for catcher vessels "greater than 60 feet" was 3.4% while the rate for catcher vessels "less than or equal to 60 feet" was 15.9%. QS holder transfer rates also showed large differences between vessel categories.

In all areas the "less than or equal to 60 foot" catcher vessel categories had the highest "three year" QS transfer rates. The "greater than 60 foot" catcher vessel categories tended to have the lowest "three year" QS transfer rates although this was not true in Southeast where the freezer class had a lower transfer rate or in the Central Gulf where the freezer and "greater than 60 foot" catcher transfer rates were approximately the same. Freezer vessel "three-year" transfer rates tended to be between the two catcher vessel category transfer rates.

Table 4-2. Sablefish 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 %
Southeast	1995	Freezer	6,070,255	270,348	4.5	44	6	13.6
		GT 60 ft.	13,542,232	1,017,460	7.5	117	18	15.4
		LE 60 ft.	45,740,275	4,610,012	10.1	500	118	23.6
	1996	Freezer	5,985,260	600,437	10.0	41	9	22.0
		GT 60 ft.	13,485,766	1,665,863	12.4	110	20	18.2
		LE 60 ft.	46,358,449	3,518,097	7.6	463	91	19.7
	1997	Freezer	6,041,780	325,355	5.4	38	9	23.7
		GT 60 ft.	13,460,403	661,090	4.9	104	14	13.5
		LE 60 ft.	46,436,579	4,128,868	8.9	422	87	20.6
	All Yrs	Freezer	18,097,295	1,196,140	6.6	123	24	19.5
		GT 60 ft.	40,488,401	3,344,413	8.3	331	52	15.7
		LE 60 ft.	138,535,303	12,256,977	8.8	1,385	296	21.4
W. Yakutat	1995	Freezer	4,266,270	198,867	4.7	33	4	12.1
		GT 60 ft.	32,059,405	1,509,862	4.7	123	16	13.0
		LE 60 ft.	16,271,594	1,569,741	9.6	268	49	18.3
	1996	Freezer	4,279,728	484,520	11.3	32	6	18.8
		GT 60 ft.	32,170,690	1,546,931	4.8	127	19	15.0
		LE 60 ft.	16,577,808	1,819,959	11.0	244	51	20.9
	1997	Freezer	4,326,056	332,112	7.7	32	7	21.9
		GT 60 ft.	32,192,683	2,083,535	6.5	119	28	23.5
		LE 60 ft.	16,597,881	1,728,334	10.4	211	54	25.6
	All Yrs	Freezer	12,872,054	1,015,499	7.9	97	17	17.5
		GT 60 ft.	96,422,778	5,140,328	5.3	369	63	17.1
		LE 60 ft.	49,447,283	5,118,034	10.4	723	154	21.3
C. Gulf	1995	Freezer	15,067,735	563,533	3.7	41	4	9.8
		GT 60 ft.	52,735,414	2,888,961	5.5	179	25	14.0
		LE 60 ft.	39,832,161	4,380,982	11.0	379	70	18.5
	1996	Freezer	16,129,641	1,357,590	8.4	42	6	14.3
		GT 60 ft.	52,874,736	3,716,581	7.0	176	28	15.9
		LE 60 ft.	40,993,469	4,327,407	10.6	350	61	17.4
	1997	Freezer	16,922,204	1,715,121	10.1	37	9	24.3
		GT 60 ft.	52,921,573	5,425,820	10.3	172	41	23.8
		LE 60 ft.	41,030,081	4,230,583	10.3	310	73	23.5
	All Yrs	Freezer	48,119,580	3,636,244	7.6	120	19	15.8
		GT 60 ft.	158,531,723	12,031,362	7.6	527	94	17.8
		LE 60 ft.	121,855,711	12,938,972	10.6	1,039	204	19.6

(Continued)

Table 4-2. Sablefish 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 %
W. Gulf	1995	Freezer	13,398,039	44,223	0.3	29	3	10.3
		GT 60 ft.	15,330,271	333,425	2.2	98	8	8.2
		LE 60 ft.	6,468,532	1,530,851	23.7	93	16	17.2
	1996	Freezer	13,469,942	1,918,954	14.2	31	4	12.9
		GT 60 ft.	15,545,162	727,606	4.7	96	8	8.3
		LE 60 ft.	6,778,198	846,989	12.5	89	10	11.2
	1997	Freezer	13,578,407	125,774	0.9	30	6	20.0
		GT 60 ft.	15,590,669	1,052,556	6.8	93	23	24.7
		LE 60 ft.	6,766,163	1,358,715	20.1	84	18	21.4
	All Yrs	Freezer	40,446,388	2,088,951	5.2	90	13	14.4
		GT 60 ft.	46,466,102	2,113,587	4.5	287	39	13.6
		LE 60 ft.	20,012,893	3,736,555	18.7	266	44	16.5
Bering Sea	1995	Freezer	6,654,211	237,952	3.6	23	4	17.4
		GT 60 ft.	7,773,286	235,905	3.0	61	3	4.9
		LE 60 ft.	3,171,305	529,670	16.7	55	6	10.9
	1996	Freezer	7,107,489	779,205	11.0	26	2	7.7
		GT 60 ft.	7,773,286	295,952	3.8	59	2	3.4
		LE 60 ft.	3,540,254	451,586	12.8	52	4	7.7
	1997	Freezer	7,288,858	360,448	4.9	26	2	7.7
		GT 60 ft.	7,773,286	258,139	3.3	57	4	7.0
		LE 60 ft.	3,540,254	648,407	18.3	51	4	7.8
	All Yrs	Freezer	21,050,558	1,377,605	6.5	75	8	10.7
		GT 60 ft.	23,319,858	789,996	3.4	177	9	5.1
		LE 60 ft.	10,251,813	1,629,663	15.9	158	14	8.9
Aleutians	1995	Freezer	16,374,036	695,809	4.2	28	3	10.7
		GT 60 ft.	11,086,468	550,180	5.0	58	6	10.3
		LE 60 ft.	2,402,825	897,635	37.4	41	5	12.2
	1996	Freezer	17,123,651	1,213,703	7.1	30	3	10.0
		GT 60 ft.	11,319,633	352,931	3.1	60	3	5.0
		LE 60 ft.	2,660,576	496,076	18.6	42	3	7.1
	1997	Freezer	17,537,967	3,560,809	20.3	29	6	20.7
		GT 60 ft.	11,319,633	743,433	6.6	59	5	8.5
		LE 60 ft.	2,660,576	612,934	23.0	41	6	14.6
	All Yrs	Freezer	51,035,654	5,470,321	10.7	87	12	13.8
		GT 60 ft.	33,725,734	1,646,544	4.9	177	14	7.9
		LE 60 ft.	7,723,977	2,006,645	26.0	124	14	11.3

4.3 QS Sales Prices

This section covers QS transfers for which price information is available. Data on 1995 through 1997 transfers are used to provide estimates of average prices per unit of sablefish QS.

Table 4-3 shows estimated average annual prices per QS unit by area for 1995 through 1997. 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.[2] 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 the estimated average price of QS, in dollars per QS unit, ranging from a low of $0.17 for Bering Sea Area QS in 1997 to a high of $1.31 for Southeast Area QS in 1997. QS prices in dollars per QS unit are not comparable across areas since the ratio of IFQ to QS differs from area to area.

QS prices in dollars per pound of associated IFQ are more comparable across areas. These prices ranged from a low of $3.29 in the Bering Sea Area in 1997 to a high of $10.80 in the Southeast Area 1997. The estimated average prices in dollars per pound of IFQ rose in each year in the Southeast, West Yakutat, and Central Gulf Areas. The estimated prices did not show systematic changes in the other management areas (Western Gulf, Bering Sea and Aleutians) but there were small numbers of priced observations available from these areas and thus the results should be viewed with caution.

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

In many of the area and vessel category combinations there are so few observations that confidentiality standards do not permit reporting the price data. In some of the cases where estimated prices are reported, they are based on small numbers of observations. In the Southeast, West Yakutat and Central Gulf Areas, the prices tend to go up over the 1995 through 1997 time period, repeating the pattern observed in the more aggregated data summarized in Table 4-3. In these areas there do not appear to be systematic patterns of prices between vessel categories.

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 observations than there are of

[2]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.

transfers of QS with all or most IFQs. Prices are only available from three 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 IFQs per QS across areas.

The available estimates of average prices range from a low of $0.59 per QS unit in the Central Gulf Area in 1995 to a high of $1.56 per QS unit in the Southeast Area in 1997. In the Southeast and West Yakutat Areas the estimated average price fell from 1995 to 1996 and then rose again in 1997. In the Central Gulf area the estimated average price rose in each year.

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 make the estimate.

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 and 1997 forms requested prices including fees.

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.

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

Mngt Area	Year	Mean Price $/IFQ	Stan Dev Price $/IFQ	Tot IFQs Trans Used for Pricing	Mean Price $/QS	Stan Dev Price $/QS	Tot QS Trans Used for Pricing	Number of Trans Used for Pricing
Southeast	95	6.73	0.95	714,993	1.28	0.18	3,771,994	102
	96	8.05	1.61	460,777	1.21	0.24	3,067,913	86
	97	10.80	2.02	303,609	1.31	0.25	2,496,791	72
W. Yakutat	95	5.93	0.87	208,230	0.92	0.13	1,339,123	33
	96	7.62	1.23	240,912	0.88	0.14	2,090,726	51
	97	9.04	2.11	182,257	0.85	0.20	1,928,688	58
C. Gulf	95	6.02	0.92	542,427	0.82	0.12	3,979,925	53
	96	7.06	1.59	576,517	0.77	0.17	5,312,742	70
	97	9.36	1.73	707,533	0.95	0.18	6,950,682	82
W. Gulf	95	6.16	0.85	129,351	0.76	0.10	1,052,708	12
	96	5.53	0.82	265,044	0.57	0.08	2,566,140	11
	97	7.06	1.45	113,032	0.64	0.13	1,237,647	30
Bering Sea	95	4.87	0.58	11,951	0.42	0.05	138,800	4
	96	6.63	5.18	41,493	0.36	0.28	757,451	5
	97	3.29	0.35	32,695	0.17	0.02	626,938	5
Aleutians	95	4.57	0.52	91,553	0.43	0.05	979,271	6
	96	8.89	3.90	72,881	0.45	0.20	1,446,140	4
	97	4.14	0.50	66,726	0.21	0.03	1,324,979	10

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

Mngt Area	Vessel Class	Year	Mean Price $/IFQ	Stan Dev Price $/IFQ	Tot IFQs Trans Used for Pricing	Mean Price $/QS	Stan Dev Price $/QS	Tot QS Trans Used for Pricing	Number of Trans Used for Pricing
Southeast	Freezer	95	C	C	18,199	C	C	96,143	3
		96	6.67	3.50	44,588	1.00	0.53	296,723	6
		97	12.2	0.53	16,790	1.49	0.06	137,700	5
	GT 60 ft.	95	C	C	107,571	C	C	567,493	10
		96	7.88	0.74	143,251	1.18	0.11	953,279	18
		97	9.43	0.71	9,109	1.15	0.09	74,713	8
	LE 60 ft.	95	6.58	0.72	589,223	1.25	0.14	3,108,358	89
		96	8.37	1.29	272,938	1.26	0.19	1,817,911	62
		97	10.7	2.06	277,710	1.30	0.25	2,284,378	59
W. Yakutat	Freezer	95	C	C	749	C	C	4,818	1
		96	C	C	8,065	C	C	69,990	3
		97	C	C	11	C	C	117	2
	GT 60 ft.	95	C	C	98,310	C	C	632,236	6
		96	C	C	125,937	C	C	1,092,938	15
		97	C	C	57,474	C	C	607,358	14
	LE 60 ft.	95	6.28	0.60	109,171	0.98	0.09	702,069	26
		96	8.09	1.57	106,910	0.93	0.18	927,798	33
		97	8.81	2.45	124,772	0.83	0.23	1,321,213	42
C. Gulf	Freezer	95	C	C	11,120	C	C	81,280	2
		96	5.46	0.43	95,938	0.59	0.05	884,143	5
		97	10.9	2.43	110,229	1.11	0.25	1,080,256	6
	GT 60 ft.	95	C	C	186,341	C	C	1,377,323	9
		96	7.40	1.51	208,798	0.80	0.16	1,923,984	25
		97	9.64	1.36	338,128	0.98	0.14	3,330,487	25
	LE 60 ft.	95	6.32	0.76	344,966	0.86	0.10	2,521,322	42
		96	7.36	1.57	271,781	0.80	0.17	2,504,615	40
		97	8.36	1.08	259,176	0.85	0.11	2,539,939	51
W. Gulf	Freezer	95	C	C	2,261	C	C	18,403	1
		96	C	C	194,422	C	C	1,882,372	3
		97	6.10	1.78	11,480	0.56	0.16	125,697	6
	GT 60 ft.	95	C	C	20,781	C	C	169,123	3
		96	C	C	38,380	C	C	371,598	3
		97	7.45	1.51	61,434	0.68	0.14	672,668	17
	LE 60 ft.	95	6.33	0.73	106,309	0.78	0.09	865,182	8
		96	4.50	1.55	32,242	0.46	0.16	312,170	5
		97	6.74	0.96	40,118	0.62	0.09	439,282	7

(Continued)

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

Mngt Area	Vessel Class	Year	Mean Price $/IFQ	Stan Dev Price $/IFQ	Tot IFQs Trans Used for Pricing	Mean Price $/QS	Stan Dev Price $/QS	Tot QS Trans Used for Pricing	Num of Trans Used for Pricing
Bering Sea	Freezer	95	C	C	2,312	C	C	26,852	1
		96	C	C	14,802	C	C	270,210	1
	GT 60 ft.	96	C	C	2,218	C	C	40,484	1
		97	C	C	13,388	C	C	256,712	3
	LE 60 ft.	95	C	C	9,639	C	C	111,948	3
		96	C	C	24,473	C	C	446,757	3
		97	C	C	19,307	C	C	370,226	2
Aleutians	Freezer	96	C	C	47,887	C	C	950,196	2
	GT 60 ft.	95	C	C	50,285	C	C	537,859	4
		97	4.49	0.26	35,862	0.23	0.01	712,111	4
	LE 60 ft.	95	C	C	41,268	C	C	441,412	2
		96	C	C	24,994	C	C	495,944	2
		97	3.74	0.40	30,864	0.19	0.02	612,868	6

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

Mngt Area	Year	Mean Price $/QS	Stan Dev Price $/QS	Tot QS Trans Used for Pricing	Number of Trans Used for Pricing
Southeast	95	1.22	0.44	155,297	6
	96	0.94	0.33	471,382	14
	97	1.56	0.20	494,104	18
W. Yakutat	95	0.89	0.11	399,983	4
	96	0.68	0.10	256,110	7
	97	0.88	0.09	635,346	6
C. Gulf	95	0.59	0.14	590,998	5
	96	0.71	0.04	824,136	9
	97	1.05	0.06	1,275,202	10
W. Gulf	95	C	C	81,442	2
	96	C	C	36,520	2
	97	C	C	21,810	1
Bering Sea	95	C	C	106,583	1
	96	C	C	255,468	1
Aleutians	95	C	C	594,509	1
	96	C	C	164,185	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 all the prices for all of the combinations of categories, For example, the price for freezer vessel QS in the West Yakutat area cannot be reported in any year. In some combinations of categories no report can be made because there were no transfers, and in others there were too few transfers to report without breaking data confidentiality rules.

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 price estimates for the 1995-1997 period, a statistical model of QS prices was estimated using available data for the Southeast, West Yakutat, Central Gulf, and Western Gulf areas.[3] This model was then used to estimate prices for QS by management area (for the Southeast, West Yakutat, Central Gulf and Western Gulf areas), vessel class, block status, size of block, and quarter for 1995-1997. These price estimates are reported in Table 4-6. The estimates were confined to these four areas because there were not enough observations in the other areas (Bering Sea and Aleutian Islands) to develop a meaningful model.

The approach in this section is similar to an approach used to estimate prices using these category combinations in an earlier CFEC report on the halibut and sablefish IFQ programs.[4] In the earlier report, separate models were created and used to estimate prices for each management area. In this report a single model was estimated using the data from the four management areas over all three years. There are also differences in the variables used in the two studies. For these reasons, the price estimates in this report differ 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 catcher vessels over 60 feet, and for catcher vessels up to 60 feet. These estimated coefficients show how average prices increased or decreased relative to freezer vessel prices when all other factors are the same.

[3]The parameters of this model were estimated using OLS regression on 818 observations on individual transactions. 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 0.42. The coefficients had appropriate signs and the important coefficients were statistically significant.

[4]Dinneford, Elaine. Kurt Iverson, Ben Muse and Kurt Schelle. *Changes Under Alaska's Sablefish IFQ Program, 1995 to 1996.* Alaska Commercial Fisheries Entry Commission. Juneau: December, 1997. pages 44-51.

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 larger 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 hypothesized 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 "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 pounds of IFQ 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 12th quarters of the three-year time period	Dummy variables were introduced for each quarter except the first. These variables were intended to capture quarterly 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 amount 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 4-6. 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 IFQ" are reported in Table 4-6. 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. The ratio is calculated by dividing the total TAC in a management area by the QS pool for that management area 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 15,500 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 amounts 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 4-6) and average prices (Table 4-4)

A comparison with the average prices in Table 4-4 shows that for most of the areas, vessel classes, and years, the average price falls within the range of estimated prices from the model. The exceptions occur in the Southeast area, where the average price falls outside the estimated price ranges in one of the seven comparisons that can be made, and in the Western Gulf area, where the average price falls outside the estimated price range for two of the five 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 4-6 is interesting, the reader should be aware that there can be subtle differences in what these prices represent. The calculations behind the estimated prices in Table 4-6 are based on the assumption that all the 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 4-6 are broken out for more detailed category combinations and for blocked or unblocked transfers of a given size.

Price Changes Through Time

Table 4-6 indicates that estimated QS prices, measured in dollars per pound of IFQ, tended to rise from quarter to quarter during the three year period, 1995-1997. Quarterly price decreases were less frequent than increases, and the result was that, in all areas, prices in the last quarter of 1997 were higher than prices in the first quarter of 1995. Price increases over the period were large; in many instances prices more than doubled. Quarterly price decreases appeared to be concentrated in the last two quarters in 1995 and in the last quarters of 1996 and 1997.

Blocking of QS

A feature which the NPFMC added to the sablefish 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.[5] Under the program rules, blocked sablefish QS must be sold as a unit. In addition, 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 much of 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.[6]

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 sablefish 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 suggest that blocked QS did sell for less than unblocked QS and that smaller blocks sold for less than larger blocks. Estimated prices in dollars per IFQ were higher for larger blocks than for smaller ones, and higher for mean unblocked QS transfers than for large blocks of QS (although mean unblocked transfers involved more IFQ than large blocks).[7] For example, the estimated prices for West Yakutat "greater than 60 feet" catcher vessel QS in the first quarter of 1995 ranged from $4.07 per pound of IFQ for QS in small blocks, to $4.69 for QS in medium blocks, to $4.96 for QS in large blocks, to $5.59 for unblocked QS. Similar results occurred for all other area, vessel category, and quarter combinations.

The regression model used to generate these 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 for 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.

Management Area

Estimated prices also differed by management area. During 1995 and 1996, prices generally fell with a move from more easterly to more westerly management areas. Prices

[5]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).

[6]*FR* 61(155): 41523-41526. August 9, 1996. Note that the regulations allowing for the leasing of catcher vessel QS exprired on January 2, 1998 and have not been renewed.

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

tended to be highest in Southeast, lower in West Yakutat, lower still in the Central Gulf, and lowest in the Western Gulf. For example, the estimated prices of small blocks of "less than or equal to 60 feet" catcher vessel quota share in the first quarter of 1995 were $5.38 in the Southeast area, $4.55 in the West Yakutat area, $3.93 in the Central Gulf area, and $3.34 in the Western Gulf area.

In general, however, estimated price differentials between areas tended to be smaller, or even to reverse themselves, in 1997. The estimated prices for the same small blocks of "less than or equal to 60 feet" catcher vessel quota in the first quarter of 1997 were $7.28 in the Southeast area, $6.79 in the West Yakutat area, $6.94 in the Central Gulf area, and $6.71 in the Western Gulf area.

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 the more pounds of IFQ per QS unit the higher the average price per QS unit.

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. This 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 "less than or equal to 60 feet" catcher vessel QS in all of the management areas. The "greater than 60 feet" catcher vessel QS had the next highest average QS prices. Freezer vessel QS had the lowest QS prices although freezer prices and "greater than 60 feet" prices tended to be close. This relationship held for unblocked QS, and large, medium, and small blocks of QS.[8]

[8]However, the model relationships should be viewed with caution. The model did not allow variation in the estimated vessel class parameter coefficients across areas and some of the estimated parameters were not statistically significant.

Table 4-6. Estimated Prices Per Unit of Sablefish QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
Southeast	Freezer	95	1	6.23	5.69	5.47	4.96
			2	6.93	6.39	6.17	5.66
			3	6.71	6.16	5.94	5.43
			4	5.85	5.31	5.09	4.57
		96	1	7.72	7.07	6.80	6.15
			2	7.79	7.15	6.87	6.22
			3	8.04	7.40	7.12	6.47
			4	8.01	7.37	7.09	6.45
		97	1	8.51	7.76	7.42	6.63
			2	9.41	8.66	8.32	7.52
			3	11.34	10.59	10.25	9.46
			4	10.76	10.01	9.67	8.88
	GT 60 feet	95	1	6.26	5.72	5.50	4.99
			2	6.96	6.41	6.19	5.68
			3	6.73	6.19	5.97	5.46
			4	5.87	5.33	5.11	4.60
		96	1	7.75	7.11	6.83	6.18
			2	7.82	7.18	6.90	6.26
			3	8.07	7.43	7.15	6.51
			4	8.04	7.40	7.12	6.48
		97	1	8.55	7.80	7.46	6.67
			2	9.45	8.70	8.36	7.56
			3	11.38	10.63	10.29	9.50
			4	10.80	10.06	9.71	8.92
	LE 60 feet	95	1	6.65	6.11	5.89	5.38
			2	7.35	6.81	6.59	6.07
			3	7.12	6.58	6.36	5.85
			4	6.27	5.72	5.50	4.99
		96	1	8.24	7.60	7.32	6.68
			2	8.32	7.67	7.40	6.75
			3	8.57	7.92	7.65	7.00
			4	8.54	7.90	7.62	6.97
		97	1	9.16	8.41	8.07	7.28
			2	10.06	9.31	8.97	8.17
			3	11.99	11.24	10.90	10.11
			4	11.41	10.66	10.32	9.53

(Continued)

Table 4-6 (con't). Estimated Prices Per Unit of Sablefish QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
W. Yakutat	Freezer	95	1	5.56	4.93	4.66	4.04
			2	6.41	5.78	5.51	4.89
			3	6.13	5.51	5.24	4.62
			4	5.09	4.46	4.19	3.57
		96	1	7.24	6.47	6.10	5.26
			2	7.34	6.56	6.20	5.36
			3	7.66	6.89	6.53	5.68
			4	7.63	6.85	6.49	5.65
		97	1	8.30	7.42	6.98	5.96
			2	9.46	8.57	8.13	7.11
			3	11.94	11.05	10.61	9.59
			4	11.20	10.31	9.87	8.85
	GT 60 feet	95	1	5.59	4.96	4.69	4.07
			2	6.44	5.81	5.54	4.92
			3	6.17	5.54	5.27	4.65
			4	5.12	4.49	4.22	3.60
		96	1	7.29	6.51	6.15	5.31
			2	7.38	6.60	6.24	5.40
			3	7.71	6.93	6.57	5.73
			4	7.67	6.89	6.53	5.69
		97	1	8.36	7.47	7.03	6.01
			2	9.51	8.62	8.18	7.16
			3	11.99	11.10	10.66	9.64
			4	11.25	10.36	9.92	8.90
	LE 60 feet	95	1	6.07	5.44	5.17	4.55
			2	6.92	6.29	6.02	5.40
			3	6.64	6.02	5.75	5.13
			4	5.60	4.97	4.70	4.08
		96	1	7.93	7.15	6.79	5.95
			2	8.03	7.25	6.89	6.05
			3	8.35	7.58	7.21	6.37
			4	8.31	7.54	7.18	6.34
		97	1	9.14	8.25	7.81	6.79
			2	10.29	9.40	8.96	7.94
			3	12.77	11.89	11.45	10.43
			4	12.03	11.14	10.70	9.68

(Continued)

Table 4-6 (con't). Estimated Prices Per Unit of Sablefish QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
Central Gulf	Freezer	95	1	5.05	4.36	4.06	3.35
			2	6.01	5.33	5.02	4.31
			3	5.70	5.02	4.71	4.00
			4	4.51	3.83	3.52	2.81
		96	1	7.12	6.31	5.93	5.03
			2	7.22	6.41	6.03	5.14
			3	7.57	6.76	6.37	5.48
			4	7.53	6.72	6.33	5.44
		97	1	8.37	7.52	7.11	6.16
			2	9.44	8.60	8.19	7.24
			3	11.75	10.90	10.49	9.55
			4	11.06	10.21	9.80	8.86
	GT 60 feet	95	1	5.08	4.40	4.09	3.38
			2	6.05	5.36	5.06	4.35
			3	5.74	5.05	4.75	4.04
			4	4.55	3.86	3.56	2.85
		96	1	7.17	6.36	5.97	5.08
			2	7.27	6.46	6.07	5.18
			3	7.61	6.80	6.42	5.53
			4	7.57	6.76	6.38	5.49
		97	1	8.42	7.57	7.16	6.21
			2	9.49	8.64	8.23	7.29
			3	11.80	10.95	10.54	9.59
			4	11.11	10.26	9.85	8.90
	LE 60 feet	95	1	5.63	4.94	4.63	3.93
			2	6.59	5.90	5.60	4.89
			3	6.28	5.60	5.29	4.58
			4	5.09	4.41	4.10	3.39
		96	1	7.85	7.04	6.66	5.76
			2	7.95	7.14	6.76	5.87
			3	8.30	7.49	7.10	6.21
			4	8.26	7.45	7.06	6.17
		97	1	9.14	8.30	7.89	6.94
			2	10.22	9.37	8.96	8.01
			3	12.53	11.68	11.27	10.32
			4	11.83	10.99	10.58	9.63

(Continued)

Table 4-6 (con't). Estimated Prices Per Unit of Sablefish QS, Expressed in Dollars Per Pound of IFQ

Area	Vessel Category	Year	Quarter	Unblocked Price	Large Block Price	Medium Block Price	Small Block Price
Western Gulf	Freezer	95	1	4.57	3.83	3.49	2.70
			2	5.64	4.90	4.56	3.77
			3	5.30	4.56	4.22	3.43
			4	3.98	3.23	2.89	2.11
		96	1	7.01	6.18	5.77	4.83
			2	7.12	6.28	5.88	4.94
			3	7.48	6.64	6.24	5.30
			4	7.44	6.60	6.20	5.26
		97	1	8.27	7.36	6.90	5.84
			2	9.47	8.56	8.10	7.04
			3	12.05	11.14	10.68	9.62
			4	11.28	10.36	9.91	8.85
	GT 60 feet	95	1	4.61	3.87	3.53	2.74
			2	5.68	4.94	4.60	3.81
			3	5.34	4.60	4.26	3.47
			4	4.02	3.27	2.93	2.15
		96	1	7.06	6.22	5.82	4.88
			2	7.17	6.33	5.93	4.99
			3	7.53	6.69	6.29	5.35
			4	7.49	6.65	6.25	5.31
		97	1	8.32	7.41	6.95	5.89
			2	9.52	8.61	8.15	7.09
			3	12.10	11.19	10.73	9.67
			4	11.33	10.42	9.96	8.90
	LE 60 feet	95	1	5.21	4.47	4.13	3.34
			2	6.29	5.55	5.21	4.42
			3	5.94	5.20	4.86	4.07
			4	4.62	3.88	3.54	2.75
		96	1	7.78	6.94	6.54	5.60
			2	7.89	7.05	6.64	5.71
			3	8.25	7.41	7.01	6.07
			4	8.21	7.37	6.97	6.03
		97	1	9.14	8.23	7.77	6.71
			2	10.34	9.42	8.97	7.91
			3	12.92	12.00	11.55	10.49
			4	12.14	11.23	10.78	9.72