3.5 Washington Inland Waters Region

3.5.1 Overview

The Washington Inland Waters Region, for the purposes of this analysis, is defined as a 12 county area within the State of Washington. These counties, listed below and shown in Figure 3.5-1, border Washington's inland waters from southern Puget Sound north to the Canadian border.

Clallum County, WA	Island County, WA	Jefferson County, WA
King County, WA	Kitsap County, WA	Mason County, WA
Pierce County, WA	San Juan County, WA	Skagit County, WA
Snohomish County, WA	Thurston County, WA	Whatcom County, WA

With approximately 3.8 million residents in 1997, this is a large region, both in geographic and socioeconomic terms.

Figure 3.5-1. Washington Inland Waters Study Region

The economy of this region is well-developed and diverse. While the fishing industry contributes significantly to the regional economy, it is not of a size that makes it evident in aggregated statistical measures or indicators. Fortunately, a recent report provides a relatively detailed description of the catcher vessel and mobile processing sectors of the Washington-based fishing industry (NCR 1999). This report describes the reliance of this fleet on Alaskan fisheries in general.

One segment of the Washington State fleet, which is especially concentrated in the Washington Inland Waters region, is that which participates in the Alaskan groundfish fishery. This will serve as the focus of this section, and the background information provided is intended to aid in understanding and contextualizing that focus.

3.5.2 Regional Economy

As expected of a large metropolitan area, services and retail trade extremely important economic sectors and are the two largest in terms of employment (Table 3.5-1). Manufacturing employs somewhat more people than the state and local government sector, followed by the finance, insurance, and real estate sector. The military, civilian federal, agricultural, and mining sectors are relatively small. The fishing industry has a significant presence in parts of the region, but is greatly overshadowed in terms of employment by other more highly developed and extensive economic sectors. Areas with higher populations almost by definition have larger retail trade and service sectors than do areas of lower population, and the Washington Inland Waters Region is the regional hub for the Pacific Northwest.

Table 3.5-1. Total Employment for Washington Inland Waters Region, 1975–1999

Sector	No. of Persons Employed by Year					
	1975	1980	1985	1990	1995	1999
Agricultural Services, Forestry, Fishing, and Other	11,491	19,632	22,928	29,237	31,156	34,894
Construction	48,344	75,435	83,680	119,877	122,075	152,873
Federal, Civilian	46,549	51,601	53,838	57,862	53,753	51,375
Finance, Insurance, and Real Estate	93,062	123,356	135,175	171,918	172,389	201,593
Manufacturing	170,353	225,326	214,140	281,795	249,824	279,737
Military	58,660	58,860	66,846	68,930	65,028	61,984
Mining	807a	1,689	2,101a	2,401	2,610	2,358a
Retail Trade	166,371	229,285	262,242	334,652	377,391	412,301
Service	219,444	309,057	401,585	550,024	644,900	771,417
State and Local	151,864	167,992	177,954	217,910	250,270	271,223
Transportation and Public Utilities	54,781	72,418	76,759	96,327	102,339	116,516
Wholesale Trade	55,782	73,016	79,190	103,100	114,285	123,083a

Note: Where “a” appears in the table, the data is suppressed due to confidentiality reasons, or because there were fewer than ten jobs in that sector during the year indicated. Where an “a” follows a numerical value, one or more of the underlying statistical areas faced disclosure or other limitations. Although the data do not appear in the table, the totals shown in the summary table reflect all available information, which might include estimates of employment and income for unusually small sectors.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System (REIS), 1969-1999. Personal income and employment estimates for all counties and metropolitan areas in the United States.

Table 3.5-2 illustrates the same general pattern as Table 3.5-1. While the service sector is still the single largest category, however, manufacturing is second reflecting relatively high compensation per employment position. The government sector is third, followed by retail trade, and finance, insurance, and real estate. Again, fishing industry income is overshadowed in this table by the larger sectors of

the economy. Table 3.5-3 displays summary information on population, personal income, and employment for the years 1975 through 1999 for the region.

Table 3.5-2. Total Non-farm Earnings for Washington Inland Waters Region, 1975–1999

Sector	Earnings by Year ($Millions)					
	1975	1980	1985	1990	1995	1999
Agricultural Services, Forestry, Fishing, and Other	105.5	247.2	356.8	921.9	771.9	995.2
Construction	751.0	1,705.2	2,112.7	3,765.5	4,223.6	6,352.6
Federal, Civilian	808.1	1,341.2	1,843.8	2,395.6	2,883.9	3,222.8
Finance, Insurance, and Real Estate	609.2	1,353.2	1,862.0	3,152.4	4,647.8	6,811.5
Manufacturing	2,645.4	5,544.1	6,693.7	10,530.3	11,380.9	14,784.8
Military	607.8	877.5	1,654.8	1,932.6	2,249.8	2,523.1
Mining	28.9	95.4	91.5	47.4	68.0	90.9a
Retail Trade	1,316.5	2,431.3	3,544.4	5,086.6	6,397.9	8,867.1
Service	1,834.2	4,015.4	6,642.8	12,234.7	18,129.9	34,205.4
State and Local	1,635.6	2,906.2	4,183.5	6,165.4	8,676.6	10,647.0
Transportation and Public Utilities	878.9	1,728.2	2,355.0	3,522.1	5,164.1	6,040.6
Wholesale Trade	832.8	1,620.9	2,136.4	3,369.7	4,509.5	5,760.1a

Note: Where “a” appears in the table, the data is suppressed due to confidentiality reasons, or because there were fewer than ten jobs in that sector during the year indicated. Where an “a” follows a numerical value, one or more of the underlying statistical areas faced disclosure or other limitations. Although the data do not appear in the table, the totals shown in the summary table reflect all available information, which might include estimates of employment and income for unusually small sectors.

Source: REIS, 1969-1999. Personal income and employment estimates for all counties and metropolitan areas in the United States.

Table 3.5-3. Personal Income, Population, Per Capita Income, and Total Employment for Washington Inland Waters Region, 1975–1999

Indicator	Indicator Data by Year					
	1975	1980	1985	1990	1995	1999
Personal Income ($Millions)	15,806.6	31,216.0	46,122.0	72,336.7	94,592.5	131,449.0
Population (No. of Persons)	2,342,398	2,703,026	2,903,105	3,328,588	3,651,912	3,881,943
Per Capita Personal Income ($)	$6,748	$11,549	$15,887	$21,732	$25,902	$33,862
Total Full- and Part-Time Employment (No. of Persons)	1,094,198	1,426,707	1,594,370	2,050,879	2,201,894	2,497,196

Personal income includes nonfarm and farm income (adjusted for social insurance and residence) plus dividends, interest, rent, and transfer payments.

Source: REIS, 1969-1999. Personal income and employment estimates for all counties and metropolitan areas in the United States.

3.5.3 Links to the Alaskan Groundfish Fishery

Inshore Groundfish Processing

Table 3.5-4 displays information on regional processing employment. Table 3.5-5 provides information on regional processing payments to labor.

The Washington region does not have shoreplants within the region that process Alaska groundfish. However, a portion of employment and payments to labor at Washington owned shoreplants in Alaska derive to the region (i.e., for management and administrative staff). At-sea processing employments and payments to labor dominate as these sectors, no matter where they harvest and process in the North Pacific, are majority owned in Washington. The offshore catcher processor sectors (motherships, trawl catcher processors, and longline catcher processors) are by far the most significant contributor. While this undoubtedly reflects reality in general, it must be noted that the table probably overstates the regional employment attributable to these offshore sectors in absolute terms. This is due to the methodology employed, where all employment for these entities accrues to the region of the residence of the owner, and ownership for these sectors is concentrated in the Washington Inland Waters region. On the other hand, it is known that many entities in these sectors have various sorts of business relationships with Alaskan CDQ groups, and have special arrangements to foster Alaskan, and especially Native Alaskan, hire. Conversely, shoreplant employment for residents of the Washington Inland Waters region may well be understated, as all such employment except for head office staff is attributed to the region of the location of the plant. Transient labor thus is by definition treated as resident labor in this table (and similar tables in other regions).

Total labor payments to residents of the Washington Inland Waters regions and shows the same relationships as seen in the employment data. Again the offshore sectors are most significant, and again absolute numbers are probably overestimated. The general relationships would appear to be valid, with surimi catcher processors providing the most jobs and labor payments, with fillet catcher processors next, followed by head and gut catcher processors, longline catcher processors, and motherships. Shoreplant labor payments to residents of the Washington Inland Waters region are relatively low, even after allowances are made for their being understated.

Table 3.5-4. Groundfish Processing FTE Employment on At-Sea Processors Owned by Residents or Shore-Based Processors in the Washington Inland Waters Region, 1992-2000

Year	Processing FTE Employment in the Region													
	ST-CP	FT-CP	HT-CP	P-CP	L-CP	BSP-SP	APA-SP	K-SP	SC-SP	SE-SP	MS	FLT	OTHER	Total
1992	1,717.03	1,582.89	728.45	16.51	483.08	91.11	13.74	11.16	1.58	1.91	326.30	93.02	0.39	5,067.19
1993	1,562.00	1,955.51	635.90	a	501.85	85.31	15.87	13.08	1.95	1.80	329.82	24.47	a	5,127.56
1994	1,735.80	1,155.69	899.76	9.10	457.13	103.28	11.80	11.25	1.94	1.88	329.87	18.21	0.11	4,735.83
1995	2,028.66	1,281.54	928.60	33.26	607.71	115.68	10.57	16.83	2.23	1.70	590.92	51.87	0.09	5,669.67
1996	1,999.84	1,508.26	1,251.80	57.99	573.48	116.73	11.94	15.11	2.07	1.35	662.61	64.71	0.05	6,265.95
1997	1,478.07	1,052.19	1,195.76	30.41	682.89	110.38	14.24	18.61	3.03	1.23	423.18	26.36	a	5,036.34
1998	1,692.41	1,167.43	1,030.89	29.82	672.00	101.94	10.31	20.73	3.92	1.20	397.93	5.10	a	5,133.69
1999	1,435.72	368.63	1,107.75	53.90	579.94	114.89	15.42	18.45	2.58	0.89	232.21	49.63	0.91	3,980.91
2000	1,438.68	378.48	947.22	39.08	661.46	144.61	11.47	17.90	1.43	1.11	322.56	167.29	a	4,131.29

Note: All employment on at-sea processors (including floaters) and administrative employment at all processors are assigned to the owners region. On-site employment at shore plants are assigned to the region in which the plant is located.

For all sectors, additional payments to labor for admininstrative and office personnel are assigned to the owners region.

a Added to Floaters to ensure confidentiality.

b In order to protect confidentiality, all at-sea and administrative payments to labor for this year reflect averages for the sectors are not adjusted to reflect regional differences.

Source: Estimated by Northern Economics

Table 3.5-5. Adjusted Groundfish Processing Payments to Labor for Shoreside Processors in the Region and for At-sea Processors Owned by Residents of the Washington Inland Waters Region, 1992-2000

Year	$Millions													
	ST-CP	FT-CP	HT-CP	P-CP	L-CP	BSP-SP	APA-SP	K-SP	SC-SP	SE-SP	MS	FLT	OTHER	Total
1992	143.02	70.58	45.15	1.58	25.59	34.69	3.76	3.54	1.03	2.33	33.15	3.43	0.07	367.92
1993	72.76	71.35	43.44	a	21.86	19.26	3.38	3.64	1.22	2.26	16.03	1.67	a	256.86
1994	93.67	52.27	54.32	0.39	24.73	27.01	2.73	3.70	1.26	2.73	19.49	1.15	0.02	283.47
1995	129.47	54.28	62.12	0.77	28.16	35.84	3.24	4.84	1.63	3.21	27.44	1.90	0.03	352.94
1996	90.65	57.48	71.08	1.60	29.02	30.05	2.84	4.49	1.71	2.53	24.42	1.78	0.01	317.66
1997	95.38	51.37	55.75	0.71	30.84	29.87	3.26	4.81	1.41	2.23	26.35	0.86	a	302.85
1998	81.71	50.95	40.92	0.86	35.37	25.74	2.33	5.01	1.43	1.65	21.86	0.24	a	268.08
1999	103.95	29.53	46.96	2.34	40.29	33.74	4.09	5.07	1.49	1.44	21.70	0.79	0.27	291.64
2000	117.68	33.71	50.19	1.37	43.13	40.85	3.05	5.11	1.19	1.81	29.75	7.06	a	334.90

Note: All payments to labor from at-sea processors (including floating inshore plants) are assigned to the owners region. On-site payments to labor from shore plants are assigned to the region in which the plant is located.

For all sectors, additional payments to labor for admininstrative and office personnel are assigned to the owners region.

a Added to Floating Inshore Processors to ensure confidentiality.

Source: Estimated by Northern Economics

Processing Ownership

Table 3.5-6 below points out the concentration of the ownership of processing in the Washington Inland Waters region for all processing sectors. While the degree of such concentration varies by sector, the existence of such concentration does not. Regional owner concentration is especially significant for shore plants in the Bering Sea and Aleutian Island regions, and for trawl catcher

processors. A significant number of longline catcher processors are also owned by residents of this region, but ownership of this sector is still not as regionally concentrated as for the others mentioned.

Note that the large reduction in numbers of entities in the surimi trawl catcher processor and fillet trawl catcher processor sectors between 1998 and 1999 are a direct result of the American Fisheries Act. Provisions of the AFA retired eight of the then active trawl catcher processors from the fishery, authorized an industry-organized cooperative fishery for the offshore pollock fishery in the Bering Sea, and decreased the overall quota percentage for the Bering Sea pollock fishery (increasing the onshore quota). Although this may appear to have been (and was) a very significant decrease in processing capacity, it also reflects the previous overcapitalization of this fishery, as more than ample processing capacity still exists in the Bering Sea processing sectors.

Table 3.5-6. Number of Processors Owned by Residents of the Washington Inland Waters Region, 1992-2001

Year	Number of Processors													
	ST-CP	FT-CP	HT-CP	P-CP	L-CP	BSP-SP	APA-SP	K-SP	SC-SP	SE-SP	MS	FLT	OTHER	Total
1992	20	18	22	11	36	6	5	6	7	10	5	10	0	156
1993	18	22	19	1	37	6	6	6	6	10	3	8	0	142
1994	20	15	21	3	38	6	5	5	8	10	4	7	0	142
1995	20	13	27	5	35	6	4	6	7	12	4	8	0	147
1996	18	14	24	7	32	6	3	6	7	10	3	8	0	138
1997	16	13	23	5	33	6	4	6	7	8	3	2	0	126
1998	16	12	18	4	32	6	3	6	8	8	3	1	2	119
1999	12	4	19	7	28	6	5	6	7	6	3	3	3	109
2000	11	4	19	9	30	6	5	6	6	7	3	10	2	118

Source: NMFS Blend Data, June 2001.

The following group of four tables provides more detailed information on a species break-out basis for regionally owned processors. Table 3.5-7 provides information on the number of regionally owned processors by species by year (as processors may participate in more than one fishery, the subtotals exceed the total number of regionally owned processors). Table 3.5-8 provides information on the volume of fish, by species, processed at these plants. Table 3.5-9 displays information on the wholesale production value by species at these plants. Table 3.5-10 provides information on adjusted processing revenues, by sector, for regionally owned processors.

As shown, the Washington region predominates in number of processors, but especially in tons processed for the various species. This is less evident for ARSO, but more evident for pollock among the individual species groups (and the latter reflects both the large Alaska based shoreplant ownership as well as at-sea processing ownership). Production values are by far the greatest for pollock (67 percent of regional total in 2000) followed by pacific cod (20 percent of regional total in 2000). On a sector basis, processing revenues are dominated by the Bering Sea pollock shoreplant and the surimi catcher-processor sectors.

Table 3.5-7. Number of Processors Owned by Residents of the Washington Inland Waters Region, by Groundfish Species, 1992-2000

Year	Number of Processors				
	ARSO	FLAT	PCOD	PLCK	Total
1992	156	156	156	150	157
1993	143	143	143	128	143
1994	143	142	142	123	143
1995	148	145	147	137	148
1996	138	137	136	128	139
1997	127	126	126	117	127
1998	120	119	117	110	120
1999	110	109	109	103	110
2000	118	114	119	108	119

Source: NMFS Blend Data, 2001

Table 3.5-8. Round Weight Tons Processed at Processors Owned by Residents of the Washington Inland Waters Region, by Groundfish Species, 1992-2000

Year	Thousands of Tons				
	ARSO	FLAT	PCOD	PLCK	Total
1992	150.74	253.46	240.32	1,490.96	2,135.48
1993	152.92	209.59	183.84	1,446.98	1,993.33
1994	134.74	259.69	209.41	1,447.02	2,050.86
1995	143.97	242.16	272.53	1,387.26	2,045.93
1996	167.66	252.50	274.31	1,263.55	1,958.03
1997	130.90	299.08	289.88	1,222.90	1,942.76
1998	119.78	185.19	227.69	1,233.07	1,765.73
1999	125.78	157.01	199.50	1,071.19	1,553.48
2000	123.03	192.42	198.71	1,199.45	1,713.62

Note: Values include “Ghost” processors.
Source: NMFS Blend and WPR Data, June 2001

Table 3.5-9. Wholesale Production Value for Processors Owned by Residents of the Washington Inland Waters Region by Species, 1992-2000

Year	$Millions				
	ARSO	FLAT	PCOD	PLCK	Total
1992	144.84	87.54	187.29	905.51	1,325.17
1993	150.01	91.34	117.18	539.17	897.70
1994	130.42	116.87	129.30	653.85	1,030.45
1995	154.84	121.96	184.00	844.60	1,305.40
1996	158.17	119.99	195.95	675.22	1,149.33
1997	120.51	114.77	198.76	679.39	1,113.43
1998	84.25	69.97	200.87	624.15	979.24
1999	93.56	58.31	251.75	716.18	1,119.80
2000	93.72	76.61	253.10	860.22	1,283.65

Source: NMFS Weekly Production Reports, June 2001

Note: Values include "Ghost" processors.

Table 3.5-10. Adjusted Groundfish Processing Revenues at Processors Owned by Residents of the Washington Inland Waters Region, 1992-2000

Year	$Millions													
	ST-CP	FT-CP	HT-CP	P-CP	L-CP	BSP-SP	APA-SP	K-SP	SC-SP	SE-SP	MS	FLT	OTHER	Total
1992	408.63	176.44	112.88	5.26	63.99	346.93	37.57	35.38	10.27	23.32	94.72	9.79	0.00	1,325.17
1993	207.89	178.37	108.60	a	54.64	192.57	33.85	36.40	12.18	22.65	45.79	4.76	a	897.70
1994	267.63	130.67	135.79	1.30	61.83	270.07	27.26	37.04	12.60	27.29	55.68	3.29	0.00	1,030.45
1995	369.92	135.71	155.31	2.57	70.39	358.37	32.44	48.44	16.34	32.10	78.40	5.41	0.00	1,305.40
1996	259.00	143.70	177.69	5.32	72.56	300.51	28.42	44.90	17.09	25.28	69.78	5.08	0.00	1,149.33
1997	272.50	128.43	139.37	2.38	77.11	298.67	32.65	48.14	14.12	22.33	75.29	2.46	a	1,113.43
1998	233.44	127.37	102.30	2.87	88.42	257.45	23.31	50.07	14.33	16.52	62.47	0.69	a	979.24
1999	297.00	73.82	117.39	7.80	100.73	337.39	40.91	50.66	14.87	14.40	62.00	2.26	0.56	1,119.80
2000	336.24	84.27	125.46	4.58	107.84	408.51	30.54	51.11	11.89	18.07	84.99	20.16	a	1,283.65

a Added to Floating Inshore Processors to ensure confidentiality.

b Due to confidentiality restrictions, all values for this year reflect averages for the processor classes and are not adjusted to reflect regional differences.

Source: Estimated by Northern Economics

Catcher Vessel Ownership

Tables 3.5-11 through 3.5-13 provide general descriptive information on regionally owned catcher vessels. Table 3.5-11 shows the number of vessels within the length and gear based sector classes as defined in the sector profiles section (Section 2) of this document. Table 3.5-12 contains information the number of catcher vessels by species group (as an individual vessel typically participates in more than one fishery, the subtotals exceed the total number of regionally owned vessels). Table 3.5-13 provides information on the number of vessels owned within the region based strictly on vessel size (irrespective of gear type).

For the Washington region, numbers in all categories are substantial compared to all other regions, except for fixed gear vessels under 32 feet. The sector discussions, elsewhere in this document, detail

the importance of each sector to the region. One important difference from many of the Alaskan regions is that larger vessels are represented more than smaller ones are. That is, catcher vessels owned by residents of the Washington Inland Waters regions tend to be larger than those owned by residents of the Alaskan regions. The trawl sector especially is well represented in this region. This again emphasizes the region's concentration of ownership (and participation) in the Bering Sea and Aleutian Islands groundfish fisheries.

Employment on regionally-owned catcher vessels is quite significant (Table 3.5-10). Fixed gear vessels contribute more employment positions than do trawlers, but trawlers may devote more of their fishing effort to groundfish than do the fixed gear boats.

Table 3.5-11. Number of Catcher Vessels Owned by Residents of the Washington Inland Waters Region, 1992-2000

Year	Number of Vessels										
	TCV BSP ≥ 125	TCV BSP 60-124	TCV Div. AFA	TCV Non-AFA	TCV < 60	PCV	LCV	FGCV 33-59	FGCV ≤ 32	GHOST	Total
1992	22	40	6	18	14	23	45	102	1	30	301
1993	20	43	2	14	15	11	33	79	3	17	237
1994	20	40	3	11	13	15	44	98	1	10	255
1995	22	44	3	10	10	45	37	65	4	36	276
1996	26	42	2	11	11	37	36	64	2	21	252
1997	35	40	4	8	13	29	44	70	1	40	284
1998	30	39	4	9	12	21	39	71	5	27	257
1999	32	35	8	10	12	47	42	70	3	17	276
2000	29	35	8	9	10	74	31	71	3	12	282

Source: CFEC/ADF&G Fish-Ticket and NMFS Observer Data. June, 2001.

Table 3.5-12. Number of Catcher Vessels Owned by Residents of the Washington Inland Waters Region by Species, 1992-2000

Year	Number of Vessels				
	ARSO	FLAT	PCOD	PLCK	Total
1992	217	86	185	98	301
1993	190	80	131	76	237
1994	217	85	119	78	255
1995	187	109	184	95	276
1996	197	103	154	93	252
1997	206	104	186	103	284
1998	214	105	166	100	257
1999	212	104	200	110	276
2000	208	123	213	130	282

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Table 3.5-13. Number of Catcher Vessels Owned by Residents of the Washington Inland Waters Region, by Vessel Length, 1992-2000

Year	Number of Vessels																	
	≤20'	21'-24'	25'-28'	29'-32'	33'-39'	40'-44'	45'-49'	50'-54'	55'-59'	60'-79'	80'-94'	95'-109'	110'-124'	125'-139'	140'-154'	155'-169'	170'+	Total
1992	0	0	0	2	10	24	49	17	29	55	20	26	33	9	2	16	9	301
1993	0	1	0	4	7	21	34	14	28	46	13	17	29	8	3	7	5	237
1994	0	0	0	2	5	27	39	13	31	47	19	18	28	7	4	9	6	255
1995	1	0	0	5	0	20	26	12	24	45	28	31	44	15	7	9	9	276
1996	0	0	0	4	5	14	20	11	34	41	16	28	39	17	10	8	5	252
1997	1	0	0	3	8	13	21	9	42	36	20	27	43	24	11	10	16	284
1998	0	0	2	4	13	14	17	10	39	37	15	19	37	18	10	9	13	257
1999	0	0	1	4	4	11	15	11	45	40	20	29	40	24	11	13	8	276
2000	0	1	0	5	12	14	12	10	40	36	19	32	45	24	15	10	7	282

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Table 3.5-14 displays information on employment on catcher vessels owned by regional residents, by gear/length class. Table 3.5-15 provides payment to labor information broken out by gear/length class, and Table 3.5-16 provides data on payments to labor on vessels broken out by species group.

As shown, Washington region employment is substantial for numerous sectors. Payments to labor are dominated by the larger Bering Sea trawl fleet. On a species basis, pollock dominates payments to labor as well. More regional vessels participate in the Bering Sea FMP area than others, but effort is substantial in every area. Distribution of effort for pollock and Pacific cod varies with a greater emphasis in the Bering Sea and a lesser emphasis in the Eastern GOA for pollock.

Table 3.5-14. Number of Crewmembers on Catcher Vessels Owned by Resident of the Washington Inland Waters Region, 1992-2000

Year	Number of Crewmembers									
	TCV BSP ≥ 125	TCV BSP 60-124	TCV Div. AFA	TCV Non-AFA	TCV < 60	PCV	LCV	FGCV 33-59	FGCV ≤ 32	Total
1992	99	180	27	77	56	127	215	444	4	1,228
1993	90	194	9	59	60	61	154	340	12	978
1994	90	180	14	45	52	83	220	412	4	1,099
1995	99	198	14	41	40	248	193	324	16	1,171
1996	117	189	9	45	44	204	176	288	8	1,080
1997	158	180	18	32	52	160	220	332	4	1,155
1998	135	176	18	36	48	116	187	332	20	1,067
1999	144	158	36	41	48	259	204	316	12	1,216
2000	131	158	36	41	40	407	154	300	12	1,278

Source: Estimates developed by Northern Economics based on vessel counts from CFEC/ADF&G Fish-Ticket and NMFS Observer Data.

Table 3.5-15. Groundfish Payments to Labor on Catcher Vessels Owned by Residents of the Washington Inland Waters Region, by Sector, 1992-2000

Year	$Millions										
	TCV BSP ≥ 125	TCV BSP 60-124	TCV Div. AFA	TCV Non-AFA	TCV < 60	PCV	LCV	FGCV 33-59	FGCV ≤ 32	GHOST	Total
1992	20.97	29.15	2.77	2.14	0.94	0.89	2.16	1.99	0.00	0.01	61.02
1993	13.11	17.12	0.53	1.40	0.69	0.53	1.23	1.57	0.02	0.00	36.21
1994	15.05	19.97	0.77	1.31	0.74	0.75	1.73	2.31	0.01	0.00	42.64
1995	19.93	27.23	0.99	1.42	0.61	2.16	4.63	2.16	0.02	0.01	59.17
1996	19.15	20.15	0.54	1.76	0.92	2.02	4.30	2.05	0.02	0.01	50.91
1997	42.30	25.64	1.47	2.03	1.27	2.08	7.84	2.27	0.01	0.01	84.92
1998	16.09	14.79	1.07	1.12	0.98	1.05	3.09	1.65	0.03	0.01	39.88
1999	24.86	17.84	2.65	1.70	1.23	2.46	3.26	1.95	0.02	0.01	55.99
2000	32.19	26.95	2.83	1.63	1.22	4.13	3.79	2.42	0.02	0.00	75.18

Note: Estimated by multiplying he number of vessels associated with the region by the regionally weighted average payments to labor--using actual value for each region would compromise confidentiality.

Table 3.5-16. Payments to Labor for Catcher Vessels Owned by Residents of the Washington Inland Waters Region by Species, 1992-2000

Year	$Millions				
	ARSO	FLAT	PCOD	PLCK	Total
1992	6.35	2.05	5.51	47.12	61.02
1993	3.90	0.28	3.89	28.13	36.21
1994	5.63	0.92	4.59	31.50	42.64
1995	11.43	1.29	6.98	39.47	59.17
1996	9.49	0.57	8.35	32.51	50.91
1997	10.30	3.12	13.63	57.87	84.92
1998	6.28	0.17	5.05	28.37	39.88
1999	6.63	0.20	8.73	40.43	55.99
2000	8.63	0.31	12.22	54.02	75.18

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Note: Values for Ghost Vessels have been included in the data set in order to minimize instances where data cannot be reported due to NMFS confidentiality provisions. In all cases the values for Ghost Vessels are negligible.

Table 3.5-17 and Table 3.5-18 display the retained harvest for regionally owned catcher vessels for the Washington Inland Waters region. These vessels harvest significant amounts of groundfish in all FMP regions.

Table 3.5-17. Number of Catcher Vessels Owned by Residents of the Washington Inland Waters Region, by FMP Subarea, 1992-2000

Year	Number of Vessels					
	AI	BS	WG	CG	EG	Total
1992	42	149	103	130	115	301
1993	47	103	48	112	85	237
1994	38	106	49	97	121	255
1995	52	174	123	119	118	276
1996	51	146	103	105	110	252
1997	57	161	114	110	114	284
1998	40	133	95	127	106	257
1999	47	137	104	123	98	276
2000	59	151	78	92	90	282

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Table 3.5-18. Number of Catcher Vessels Owned by Residents of Washington Inland Waters Region with Pacific Cod and Pollock Landings by FMP Subarea, 1992-2000

Year	Number of Vessels												
	PCOD						PLCK						PCOD & PLCK Total
	AI	BS	WG	CG	EG	PCOD Total	AI	BS	WG	CG	EG	PLCK Total	
1992	18	124	54	66	18	185	19	79	46	32	0	98	191
1993	19	84	32	53	16	131	25	68	18	30	0	76	136
1994	14	89	45	30	8	119	22	68	28	36	5	78	119
1995	20	139	74	47	13	184	19	84	52	32	7	95	189
1996	19	124	39	41	9	154	25	83	39	18	1	93	155
1997	24	139	64	49	14	186	29	86	47	27	5	103	192
1998	18	115	58	71	11	166	21	86	42	38	5	100	166
1999	38	128	53	69	20	200	5	93	56	38	3	110	203
2000	54	141	47	43	11	213	5	111	24	16	1	130	214

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Table 3.5-19 provides information on the resident catcher vessel fleet in terms of the value of the retained harvest by FMP subarea. Table 3.5-20 details this information of pollock and Pacific cod specifically.

The Bering Sea is much more important for Washington region harvest value than for all other regions combined. Pollock was worth well over four times as much as Pacific cod to these vessels in 2000.

Table 3.5-19. Ex-Vessel Value of Harvest by Catcher Vessels Owned by Residents of the Washington Inland Waters Region by FMP Subarea, 1992-2000

Year	$Millions					
	AI	BS	WG	CG	EG	Total
1992	6.64	120.70	9.78	10.66	4.76	152.55
1993	3.25	71.47	3.95	8.28	3.58	90.53
1994	3.84	82.08	3.51	7.74	9.43	106.60
1995	5.57	105.73	8.94	15.17	12.50	147.91
1996	3.72	93.12	6.40	13.00	11.04	127.28
1997	7.93	166.68	10.19	15.03	12.46	212.30
1998	3.32	70.96	6.04	11.75	7.63	99.70
1999	4.98	106.18	7.69	13.76	7.36	139.97
2000	7.19	151.81	7.71	11.66	9.59	187.96

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Table 3.5-20. Ex-Vessel Value of Pacific Cod and Pollock Landings by Catcher Vessels Owned by Residents of the Washington Inland Waters Region by FMP Subarea, 1992-2000

Year	$Millions												
	PCOD						PLCK						PCOD & PLCK Total
	AI	BS	WG	CG	EG	PCOD Total	AI	BS	WG	CG	EG	PLCK Total	
1992	0.35	7.45	3.74	2.17	0.07	13.77	4.15	108.12	2.81	2.71	0.00	117.79	131.57
1993	0.55	5.99	1.77	1.37	0.04	9.72	1.99	64.53	1.80	2.01	0.00	70.33	80.06
1994	0.03	8.88	1.08	1.48	0.01	11.48	2.99	70.81	2.10	2.23	0.61	78.74	90.22
1995	0.13	12.35	2.63	2.34	0.00	17.45	3.76	89.63	3.47	1.74	0.07	98.67	116.12
1996	0.96	15.58	1.64	2.69	0.00	20.87	1.83	76.43	2.22	0.80	a	81.27	102.15
1997	2.93	25.00	3.66	2.42	0.07	34.08	3.74	134.14	3.69	2.39	0.70	144.67	178.75
1998	1.56	7.52	1.65	1.86	0.05	12.63	1.04	63.02	2.84	3.02	1.00	70.93	83.56
1999	3.95	11.43	3.20	3.23	0.00	21.82	0.01	94.40	2.82	3.85	a	101.07	122.89
2000	5.40	19.42	3.81	1.92	0.01	30.56	0.00	131.65	2.30	1.11	a	135.06	165.62

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

[a] Combined with value of CG to protect the confidentiality of the small number of CVs in the region that reported catching these species in this subarea during the year.

Table 3.5-21 provides information on value of harvest broken out by gear and length vessel class. Table 3.5-22 provides information on retained catch by regionally owned catcher vessels, by groundfish species. Table 3.5-23 provides parallel value information for these vessels.

Several features of the Washington fleet are apparent from these tables. The highest value, by far, comes from the Bering Sea pollock trawl vessels. Pollock catch outpaces all other species, and harvest value for pollock is far and away above other groundfish species (accounting for 72 percent of all groundfish in 2000).

Table 3.5-21. Ex-Vessel Value of Catcher Vessels by Sector from the Washington Inland Waters Region, 1992-2000

Year	Value of Catcher Vessels by Sector ($Millions)										
	TCV BSP ≥ 125	TCV BSP 60-124	TCV Div. AFA	TCV Non-AFA	TCV < 60	PCV	LCV	FGCV 33-59	FGCV ≤ 32	GHOST	Total
1992	52.42	72.87	6.93	5.35	2.35	2.22	5.40	4.98	0.01	0.02	152.55
1993	32.76	42.80	1.33	3.50	1.71	1.33	3.09	3.93	0.05	0.01	90.53
1994	37.63	49.93	1.93	3.29	1.85	1.87	4.31	5.77	0.02	0.00	106.60
1995	49.83	68.08	2.48	3.55	1.53	5.40	11.59	5.39	0.04	0.03	147.91
1996	47.88	50.38	1.36	4.40	2.29	5.05	10.74	5.12	0.04	0.01	127.28
1997	105.76	64.09	3.68	5.07	3.18	5.21	19.59	5.67	0.01	0.03	212.30
1998	40.23	36.98	2.67	2.80	2.46	2.63	7.74	4.11	0.06	0.02	99.70
1999	62.15	44.60	6.63	4.26	3.07	6.15	8.16	4.88	0.04	0.02	139.97
2000	80.48	67.38	7.07	4.07	3.05	10.33	9.47	6.04	0.05	0.01	187.96

Source: CFEC/ADF&G Fish-Ticket and NMFS Observer Data. June, 2001.

Note: Ex-vessel values shown reflect the adjusted average earned by each class multiplied by the number of vessels owned by residents of the region. Regional adjustment factors were employed to account for relative productivity differences among regions.

Table 3.5-22. Retained Tons of Groundfish by Catcher Vessels Owned by Residents of the Washington Inland Waters Region by Species, 1992-2000

Year	Thousands of Tons				
	ARSO	FLAT	PCOD	PLCK	Total
1992	7.2	15.2	36.3	493.2	551.8
1993	4.5	1.9	30.5	485.2	522.0
1994	4.7	10.2	40.2	490.3	545.4
1995	7.6	15.4	48.5	488.4	559.9
1996	6.1	8.6	60.8	475.9	551.5
1997	6.3	27.6	74.9	598.1	706.9
1998	5.9	2.6	38.7	507.8	555.0
1999	6.1	3.4	40.8	496.9	547.1
2000	5.7	4.8	47.4	551.7	609.7

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Note: Values for Ghost Vessels have been included in the data set in order to minimize instances where data cannot be reported due to NMFS confidentiality provisions. In all cases the values for Ghost Vessels are negligible.

Table 3.5-23. Ex-Vessel Value of Harvest by Catcher Vessels Owned by Residents of the Washington Inland Waters Region, 1992-2000

Year	$Millions				
	ARSO	FLAT	PCOD	PLCK	Total
1992	15.87	5.11	13.77	117.79	152.55
1993	9.76	0.71	9.72	70.33	90.53
1994	14.08	2.30	11.48	78.74	106.60
1995	28.57	3.22	17.45	98.67	147.91
1996	23.72	1.42	20.87	81.27	127.28
1997	25.75	7.79	34.08	144.67	212.30
1998	15.71	0.44	12.63	70.93	99.70
1999	16.58	0.50	21.82	101.07	139.97
2000	21.57	0.77	30.56	135.06	187.96

Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001

Note: Values for Ghost Vessels have been included in the data set in order to minimize instances where data cannot be reported due to NMFS confidentiality provisions. In all cases the values for Ghost Vessels are negligible.

In terms of communities of significance for catcher vessel ownership, Seattle is clearly the dominant community in the region. As shown in Table 3.5-24, its residents own 45 percent of the vessels in the region that, in turn, account for about two-thirds of the total regional fleet harvest value. If other communities in the greater Seattle area are added to the Seattle proper figures, the regional concentration of vessels and harvest value is even more apparent. Edmonds, Anacortes, Bellingham, and Port Townsend are each home to between 3 and 5 percent of the fleet; no other community in the region is home to more than 2 percent of the regionally owned fleet. Vessels from Edmonds account for 7 percent of the total harvest value of the regionally owned fleet, but no other community; no other communities in the region outside of Seattle account for more than 3 percent of the harvest value. As shown, a large number of communities in the region have at least some vessels that participate in the Alaska groundfish fisheries.

Table 3.5-24. Community Rankings by Alaska Groundfish Catcher Vessels Owned by Residents of the Washington Inland Waters Region, 1992-2000

City	Total Value a	No. of Vessels
	Percent of Region Total	
Seattle	65.3	45.3
Edmonds	6.8	4.7
Anacortes	2.8	4.3
Mercer Island	2.6	1.7
Shoreline	2.5	1.2
Woodinville	2.3	1.4
Bainbridge Island	2.0	1.4
Bothell	1.8	1.7
Bellingham	1.8	5.5
Redmond	1.8	0.6
Renton	1.5	0.9
Bellevue	0.7	2.0
Kirkland	0.7	0.5
Port Townsend	0.7	2.9
Issaquah	0.5	0.5
Duvall	0.4	0.3
Gig Harbor	0.4	1.8
Lynnwood	0.4	1.2
Stanwood	0.4	1.1
Snohomish	0.3	1.4
Blaine	0.3	0.9
Everett	0.3	1.8
Vashon	0.3	0.8
Bow	0.3	0.3
Mount Vernon	0.2	1.1
Port Angeles	0.2	1.5
Sequim	0.2	0.9
Poulsbo	0.2	0.6
Olympia	0.2	0.8
Oak Harbor	0.1	0.5
Mukilteo	0.1	0.8
Port Orchard	0.1	0.8
Federal Way	0.1	0.6
Fox Island	0.1	0.3
Friday Harbor	0.1	0.5
Mill Creek	0.1	0.5
Gardiner	0.1	0.2
Clinton	0.1	0.5
Kingston	0.1	0.2
Burlington	0.1	0.5
Sekiu	0.1	0.2
Granite Falls	0.1	0.2

City	Total Value a	No. of Vessels
	Percent of Region Total	
South Colby	0.1	0.2
Enumclaw	0.1	0.5
Camano Island	0.1	0.3
Ferndale	0.0	0.5
Custer	0.0	0.3
Marysville	0.0	0.3
Milton	0.0	0.2
Tukwila	0.0	0.2
Tacoma	0.0	0.2
Brinnon	0.0	0.2
Carnation	0.0	0.2
Chimacum	0.0	0.2
Nordland	0.0	0.2
Lopez	0.0	0.2
Lopez Island	0.0	0.2
Lake Forrest Park	0.0	0.2
Lummi Island	0.0	0.2
Woodway	0.0	0.2
Longbranch	0.0	0.2
Matlock	0.0	0.2
Buckley	0.0	0.2
Langley	0.0	0.2
Neah Bay	0.0	0.2
Bremerton	0.0	0.2
Port Hadlock	0.0	0.2
Freeland	0.0	0.2
Indianola	0.0	0.2
Eatonville	0.0	0.2
Laconner	0.0	0.2

Note: Communities are ranked based on each community's percent of the historical total value for the region.
a Total value percentage for each community is based on average revenue of each catcher vessel by type and adjusted using regional-adjustment factor.
Source: Calculated by Northern Economics using CFEC/ADF&G Fish Ticket Data, July 2001

Catcher Vessel Diversity

Table 3.5-25 provides information on the relative value of groundfish and non-groundfish species (salmon, crab, halibut, other) to regionally owned catcher vessels for the years 1999 and 2000. In addition to showing annual totals, this information is presented on a monthly basis to show the 'annual round' of the fisheries, and to allow a consideration of the changing relative importance of the different species complexes during different times of the year. Figures 3.5-2 and 3.5-3 illustrate these same data. Table 3.5-26 provides a summary break-out of the relative value of non-groundfish species on an annual basis for the period 1992-2000. This provides an easy comparison of the relative worth to owners of these species. Table 3.5-27 and Figure 3.5-4 provide a count of regionally owned groundfish vessels participating in the non-groundfish fisheries by species for 1992-2000. As

individual vessels typically participate in more than one fishery, the subtotals exceed the total number of regionally owned vessels.

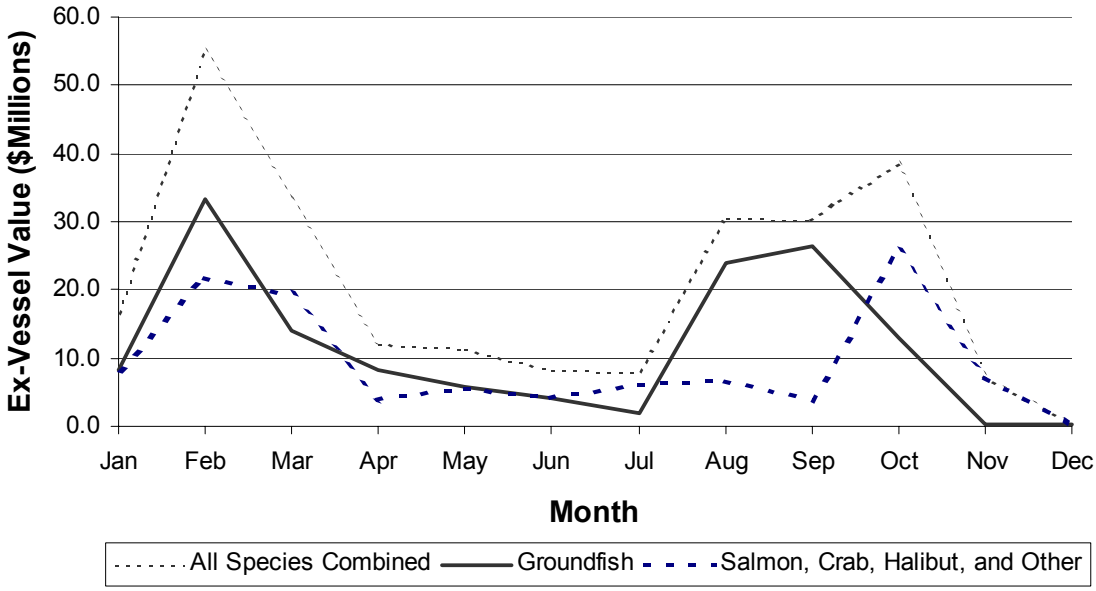
For the Washington region in 1999, groundfish accounted for 56 percent of total value for these vessels. Crab comprised 30 percent, halibut 10 percent, salmon 3 percent, and other non-groundfish 1 percent of total 1999 value. (2000 data are problematic because halibut information is missing from the data set.) Among non-groundfish species, crab is of primary importance, followed by halibut for every year since 1992. More vessels, however, participate in the halibut fishery.

Table 3.5-25. Ex-Vessel Harvest Value of Groundfish, Salmon, Crab, Halibut, and Other Species by Residents of the Washington Inland Waters Region, by Month, 1992-2000

Year	Species	$Millions												
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Total
1999	Salmon	0.00	0.00	0.00	0.00	0.01	0.79	2.67	3.83	0.24	0.00	0.00	0.00	7.54
	Crab	8.16	21.72	17.19	1.62	1.40	0.06	0.00	0.00	0.82	24.30	1.23	0.17	76.66
	Halibut	0.00	0.00	1.72	2.26	3.86	3.15	3.05	2.64	2.21	0.98	5.82	0.00	25.70
	Other	0.00	0.00	0.22	0.05	0.13	0.00	0.23	0.13	0.58	0.18	0.00	0.00	1.52
	Groundfish	8.33	33.40	14.05	8.21	5.90	4.16	2.05	23.93	26.35	13.02	0.35	0.21	139.97
2000	Salmon	0.00	0.00	0.00	0.00	0.00	0.50	1.26	1.08	0.04	0.00	0.00	0.00	2.88
	Crab	0.00	0.09	0.05	19.57	0.37	0.06	0.01	0.12	0.26	14.67	0.51	0.00	35.72
	Halibut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Other	0.00	0.00	0.01	0.00	0.02	0.00	0.14	0.16	0.85	0.47	0.00	0.11	1.77
	Groundfish	8.86	42.18	28.29	9.84	7.81	2.83	9.81	29.13	30.77	17.71	0.71	0.03	187.96

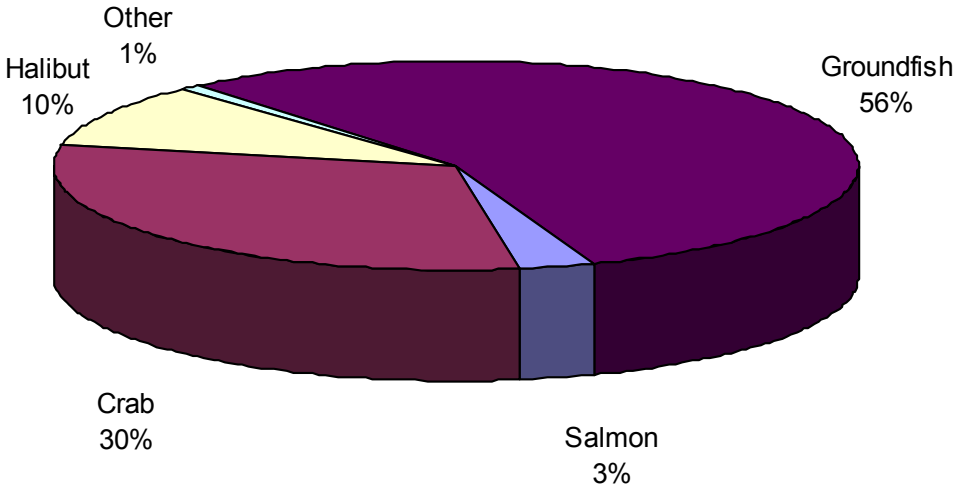
Source: CFEC/ADF&G Fish Tickets from NPFMC, July 2001

Figure 3.5-2. Ex-Vessel Harvest Value of Groundfish, Salmon, Crab, Halibut, and Other Species by Residents of the Washington Inland Waters Region, 1999



Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001.

Figure 3.5-3. Percent of Total Ex-Vessel Harvest Value by Residents of the Washington Inland Waters Region, 1999



Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001.

Table 3.5-26. Ex-Vessel Value of Non-Groundfish Harvested by Groundfish Vessels Owned by Residents of the Washington Inland Waters Region, by Species, 1992-2000

Year	$Millions				
	Salmon	Crab	Halibut	Other	Total
1992	10.88	51.21	8.56	1.10	71.75
1993	8.20	25.37	9.03	1.94	44.54
1994	9.44	27.19	12.76	1.85	51.24
1995	6.12	74.33	13.89	1.70	96.03
1996	4.09	30.37	16.66	2.17	53.29
1997	4.48	45.75	23.44	2.66	76.34
1998	5.42	40.00	14.08	1.07	60.57
1999	7.54	76.66	25.70	1.52	111.43
2000	2.88	35.72	0.00	1.77	40.36

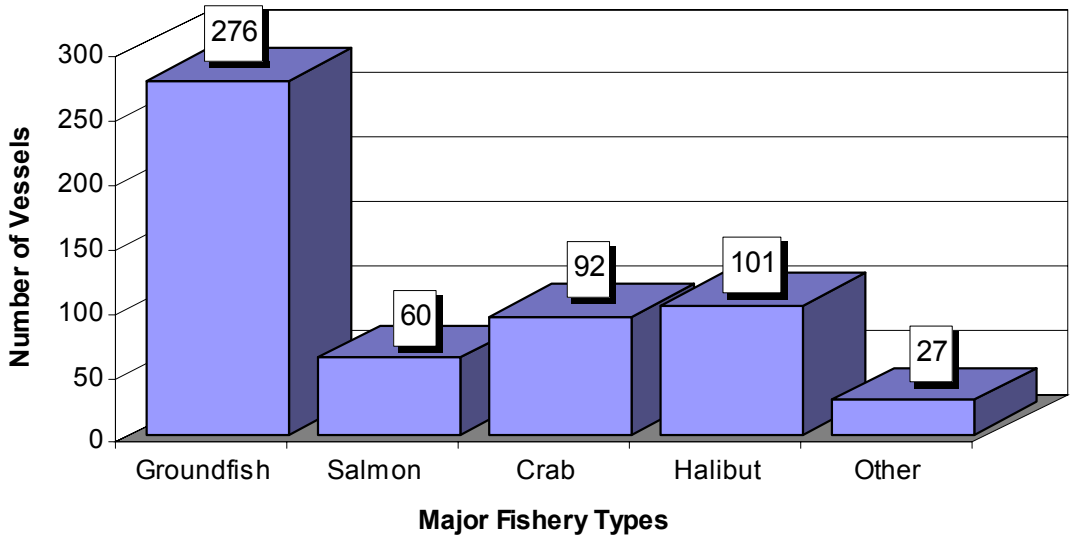
Source: CFEC/ADF&G Fish Tickets from NPFMC, July 2001

Table 3.5-27. Number of Groundfish Vessels Owned by Residents of the Washington Inland Waters Region Participating in Non-Groundfish Fisheries, by Species, 1992-2000

Year	Number of Vessels				
	Salmon	Crab	Halibut	Other	Total
1992	83	65	168	53	233
1993	75	54	133	48	188
1994	75	45	159	42	197
1995	56	103	113	37	221
1996	55	61	109	30	177
1997	55	98	115	36	224
1998	57	74	104	28	198
1999	60	92	101	27	214
2000	57	99	0	22	163

Source: CFEC/ADF&G Fish Tickets from NPFMC, July 2001

Figure 3.5-4. Number of Groundfish Vessels Owned by Residents of the Washington Inland Waters Region Participating in Non-Groundfish Fisheries, by Species, 1999



Source: CFEC/ADF&G Fish Tickets and NMFS Observer Data, June 2001.

3.5.4 Regionally Important Groundfish Communities

There are a number of communities in the Washington Inland Waters region that have important links to the North Pacific groundfish fishery. However, none of these communities have the breadth and depth of ties found in the greater Seattle metropolitan area. NCR 1999 notes that the "Alaska groundfish and halibut fisheries conducted by Washington-based fleets are presently the most

important engine of this region's fishing industry." They continue in their report to document how these fleets are, in fact, based mostly in the Port of Seattle.

NCR enumerates the Washington State-based fleet and describes the fisheries in which they participate. They divide the 2,800 total vessels into the 1,450 vessels distant water fleet (most of which clearly do not fish for Alaska groundfish) and the 1,350 vessels in the local fleet. They report that the distant water fleet accounts for 95 percent of the catch and revenue, compared to 5 percent for the local fleet. They do not specifically focus on individual fisheries (although some information is provided in terms of graphs and diagrams), but it is evident that a number of Alaskan fisheries contribute to this pattern - salmon, halibut, sablefish, herring, crab, and of course groundfish (NRC 1999:4, 50-76 with associated table). They also describe the currently dismal condition of local Washington State fisheries (NRC 1999:77-88, with associated tables).

There is relatively little information that deals specifically with the Alaskan groundfish distant water fleet, or with those geographical areas of Seattle most identifiable with fishing and perhaps characterizable as "fishing communities." Past documents produced for the NPFMC have contained profiles of the Port of Seattle, Ballard, and the Ballard/Interbay/Northend Manufacturing Center (BINMIC) planning area, as potential types of (or proxies for) Seattle "fishing communities." Information for these areas is abstracted from those documents and presented in the appropriate sections below. For the most part, no additional information relevant to the Alaskan groundfish fisheries has been developed for those areas since the earlier documents were produced. The current status of whatever recent information is available is discussed in the relevant section.

Overview: Greater Seattle Area

"Seattle" as used in this section refers to the greater Seattle metropolitan area, and is not confined to the port or municipality of Seattle, except where specifically noted. As is clear from a consideration of the individual sector profiles, Seattle, in one way or another, is engaged in all aspects of the North Pacific groundfish fishery. While Seattle itself is quite distant in geographic terms from the harvest areas of the fishery, it is the organizational center of much of the industrial activity that comprises the human components of this fishery. More accurately, specific industry sectors based in and/or linked to Seattle (or, in some cases, specific geographic subareas within Seattle), are "substantially engaged in" or "substantially dependent upon" the North Pacific groundfish fishery.

What makes Seattle an analytic challenge, in terms of a socioeconomic assessment directly related to the Alaska groundfish fishery, is its scale and diversity. Seattle's relationship to the Alaska groundfish fishery is a paradox. When examined from a number of different perspectives, Seattle is arguably more involved in the Alaska groundfish fishery in general, and the Bering Sea pollock fishery in particular, than any other community. One example is the large absolute number of "Seattle" jobs within the Alaska groundfish fishery compared to all other communities, whether counted in terms of current residence, community of origin, or community of original hire - setting aside, for the moment, where the jobs are actually located. On the other hand, when examined from a comparative and relativistic perspective, it could be argued that the fishery is less important or vital for Seattle than for the other communities considered. Using the same example, the total number of Alaska groundfish fishery-related jobs in greater Seattle compared to the overall number of jobs in Seattle is quite small, in contrast with the same type of comparison for the much smaller Alaska coastal communities. The sheer size of Seattle dilutes the overall impact of the Alaska groundfish fishery jobs, whereas in Alaskan communities such jobs represent a much greater proportion of the total employment in the community setting aside, for the moment, the consideration of whether those jobs are filled by 'residents.'

As is also clear from earlier compiled sector descriptions, while all sectors are tied to Seattle in one way or another, the magnitude and nature of these ties varies considerably between sectors. It is through these ties, and how they are manifested in Seattle, that the role of the community in the

Alaska groundfish fishery can be seen. While it was possible, and desirable for analytic purposes, to include some brief community level description for a few of the Alaska coastal communities in this document to show the relative 'engagement' or 'dependence' on the fishery, for Seattle this type of comparison tends to understate the importance of the Alaska groundfish fishery for particular sectors or subareas, losing the importance of the fishery in the 'noise' of the greater Seattle area.

The precise nature of the relationship between a given sector and the Seattle area varies from sector to sector, in terms of employment patterns, expenditure patterns, and concentration or localization in the Seattle area. While local experts and industry participants are well aware of these patterns, systematic quantitative information to describe these patterns was not available at the time of this study. We have used the limited information that is available and supplemented it with information garnered from field interviews to provide a community context characterization.

There are (at least) two ways to approach a discussion of the localization of fishing activity in general, and Alaska groundfish fishery activity in particular, within the Seattle area. The focus could be on port activity and economic organization, or on a more general historical/geographical (neighborhood or community) focus centered around fishermen, fishing activities, and marine support businesses. The first has the advantage of being well-defined, but is totally industry focused, and fishing-related activities comprise only a small portion of total activity and are not an easily 'isolatable' component using existing information. The second, generally corresponding to the common identification of Ballard and its environs with Seattle's fishing community, would incorporate much more of the overall social organization of fishing activity, but is very difficult to define and characterize within an overall economic and social context as large as Seattle's. Either approach would be a huge task for which available information is limited. A compromise has been reached in this document by briefly discussing the Port of Seattle in regard to the Alaska groundfish fishery and a cursory history and characterization of Ballard within the context of greater Seattle. This section first overviews the fishery from the community context, and then focuses on fishery-related industrial areas. The conclusion includes a discussion of the issue from the perspective of the 'community side' of the links.

The Seattle 'Geography' of the Alaska Groundfish Fishery

In this section, locational issues are discussed with respect to the Seattle area and the Alaska groundfish fishery. Here, the discussion is divided into three components: the Port of Seattle, the community of Ballard, and the Ballard/Interbay/Northend Manufacturing and Industrial Center (BINMIC) planning area. Each provides a different and useful perspective on the Seattle social/socioeconomic ties to the fishery. The Port of Seattle is one of the more obvious ways to discuss the localization of the fishing economy in Seattle and the concentration of potential socioeconomic impacts of fishery management upon Seattle. The drawback in using the Port as a proxy for a community, however, is that it does not correspond to a single residential community. Ballard is another locally recognized and labeled area with a fishing identity. While a residential community or neighborhood with a strong fisheries foundation, the role of Alaska groundfish in that underpinning (and the role of Ballard in the overall fishery) is quite limited. BINMIC represents an area defined by types of industrial use rather than a particular community. For each of these entities, there are practical limitations on the availability of data attributable specifically to the Alaska groundfish fishery. An additional complication is that while the Port is well defined as an institutional entity, the community of Ballard is not. Further, very limited information is available for the BINMIC analytic area, and there are virtually no time series data in particular.

The Port of Seattle

Martin Associates (2000) provides an overall assessment of the economic impact of fishing activity based at Port of Seattle facilities. They conclude that such activity generates $400 million in wages (direct, indirect, and induced), $315 million in business revenues, $42 million in local purchases, and

$48 million in state and local taxes. There is no way to desegregate the Alaskan distant water fleet from this overall impact, so the utility of the information for our purposes is limited. They do provide estimates for the annual expenditures in Seattle of the various fishing vessels home ported there, and as might be expected, those for the larger vessels, such as participate in the Alaskan groundfish fisheries, are the highest in terms of expenditures per vessel - $250,000 for catcher trawlers, $900,000 for factory trawlers, and $1.7 million for motherships. Most of the vessels in these classes home ported in Seattle probably participate in the Alaskan groundfish fisheries, but also participate in other fisheries. There are also many vessels in the Seattle distant water fleet that do not participate in the Alaskan groundfish fisheries. The Port itself does not have information on moorage fees received and other such information readily available, but conversations with Port of Seattle officials has indicated that moorage fees from the Alaskan groundfish fleet have declined in the past two years for two principal reasons - there are fewer vessels (the retirement/scrapping of catcher processors) and vessels are spending more time at sea and less time in port. Both of these are directly attributable to AFA. While it would appear to be a negative effect, this was in fact explained as a positive indicator for the economy of the region as a whole, as a smaller number of profitable vessels is more of an economic driver than is a larger number of marginally viable vessels. The "loss" of Port of Seattle moorage fees is merely one of the more noticeable effects of this change, but not necessarily one of the more significant ones.

The Port of Seattle is separate from the Municipality of Seattle and is an economically self-supporting entity. Besides its direct revenues, it receives 1 percent of the property tax collected in King County, but with a cap on funding not to exceed $33 million a year. In turn, all port revenues are charged a 12.4 percent tax, which is split between the city of Seattle and the state of Washington (in lieu of property tax). The Port's charge is the development of infrastructure that will support local and regional economic activities, especially in cases where the rate of return on investment in that infrastructure may be too low (although still positive) for the private investor. Such development contributes to the overall economy of the region through synergistic and multiplier effects.

The Port of Seattle includes not only marine facilities but the airport as well. The port publishes various reports on their activities, but most are either too general or far too specific for the purposes of this study. The Marine Division of the port tracks economic activity by general service area - container terminal, cargo piers and industrial properties, central waterfront piers and property, warehouse and distribution operations, Shishole Bay Marina (recreational moorage), and Fishermen's Terminal Pier and property. None of this information is organized so that expenses and revenues attributable to fishing activity (let alone specific fisheries such as the Alaska groundfish fishery) can be aggregated and assessed - although projects now underway will, in the future, provide such information to a greater degree than at present. Given this lack of breakout documentation, most of the information on the nature and magnitude of the importance of the Alaska groundfish fishery for the Port of Seattle came from talks with the Director of Marine Operations for the port.

The Port's marine facilities occupy an extensive area, but can generally be characterized as the Ship Canal-Elliott Bay areas. The Director of Marine Operations estimated that Alaska-related fishing activity generates port revenues of $1 million to $2 million a year. Facilities, and the degree to which they are connected with fishery activities, were identified as follows:

- Fishermen's Terminal (Ship Canal) - an estimated 10 percent of its revenues (roughly $2 million for all fisheries per year) were judged to result from catcher processor operations and an additional 10 percent from catcher vessel activity associated with Alaska fisheries (not just groundfish);
- Pier and Terminal 91 (North Elliott Bay) - used extensively by catcher processor fleet and provides the bulk of the Port's revenue derived from the Alaska groundfish fishery, through

moorage and other fees. This facility also caters to ferries, a tug and barge company, an auto importer, apple exports, and cold storage facilities;

- Central waterfront (mid-Elliott Bay) piers - not so fishery related, although they are sometimes used by larger vessels (Pier 48, Pier 66, Pier 69);
- Pier 25 (East Duwamish Waterway, south Elliott Bay) - permanent moorage for one of the mothership operations, but also used for catcher processor offloading, has cold storage facilities to hold product for transshipping, and a small surimi plant is located there;
- South end in general (Duwamish manufacturing and industrial center) - has some fisheries-related activities (such as cold storage facilities) but is more oriented to cargo operations and other industrial activities.

The summary conclusion for port-focused analysis is that fishing-related activities take place throughout the Port, but are concentrated in the Fishermen's Terminal and Pier 90/91 areas. Of primary importance for fishing activity, and especially for larger vessels, is the availability of suitable moorage. Much of this moorage is supplied by the port, in an aggressive response to the demand from the fishing fleet.

The initial development of Fishermen's Terminal in the 1980s was because of the perceived need for more moorage for larger vessels involved in the distant water fisheries. The current redevelopment of Fishermen's Terminal will likely increase this emphasis through the conversion of smaller moorage stalls to facilities more suitable for vessels 50 feet and longer (NRC 1999). This is in response to the drastic downturn in the economic viability of the local fishing fleet, especially the local salmon fleet which had been historically based at Fishermen's Terminal, and the increasing importance of Alaskan distant water fisheries for Seattle-based boats. These vessels tend to be 50 feet in length or more.

Ballard

When looked at on a neighborhood basis, one of more obvious foci of the distant water fishery in the greater Seattle area is the community of Ballard. Today the term 'Ballard' represents a loosely defined geographical neighborhood of northwest Seattle. There is no geographically standard area for which various types of comparable information exists. Nonetheless, the area does have a geographical identity in peoples' minds and, together with Magnolia and Queen Anne, has its own yellow pages telephone directory (published by the Ballard and Magnolia Chambers of Commerce). The following brief section is based predominately on information from the Ballard Chamber of Commerce (1998), Reinartz (1988a, 1988b, 1988c, 1988d), Hennig and Tripp (1988), and McRae (1988).

Fishermen's Terminal on Salmon Bay is recognized as the home of the Pacific fishing fleet and has been characterized as the West Coast's 'premier home port.' Fishermen's Terminal (Salmon Bay Terminal) in turn has often been identified with Ballard - formerly a separate city (incorporated 1890) annexed by Seattle in 1907. Until the construction of the Chittenden Locks and the Lake Washington Ship Canal, opened in 1917, Salmon Bay Terminal was confined to relatively small vessels, but was the focus of a developing fishing fleet. Once the area was platted and incorporated it quickly attracted settlers and industries desiring or dependent upon access to Puget Sound. The timber industry was the first to develop, due to the need to clear land as well as the value of the timber that was available. By the end of the 1890s Ballard was a well established community with the world's largest shingle manufacturing industry, as well as developing boat building and fishing industries. By 1900 Ballard was the largest area of concentrated employment north of San Francisco.

Ballard effectively blocked the expansion of Seattle to the north, and court decisions had given Seattle control over Ballard's fresh water supply, with the result that Ballard became part of Seattle in 1907. At that time the community had 17 shingle mills, 3 banks, 3 saw mills, 3 iron foundries, 3 shipyards, and approximately 300 wholesale and retail establishments. The Scandinavian identity of

Ballard developed at or somewhat before this time. In 1910, first and second generation Scandinavian-Americans accounted for 34 percent of Ballard's population, and almost half of Ballard's population was foreign-born. Currently, less than 12 percent of the population is of Scandinavian descent, but the cultural association remains pervasive.

Ballard's economy continued to develop and diversify, but remained fundamentally dependent on natural resources, and especially timber and fishing. In 1930 the *Seattle Weekly News* reported that 200 of the 300 schooners of the North Pacific halibut fleet were home ported in Ballard, demonstrating not only the centrality of Ballard but the long-term importance of distant water fisheries to Seattle fishermen. In 1936 the Port of Seattle built a new wharf at the Salmon Bay terminal, and in 1937 a large net and gear warehouse was scheduled for construction there. Over the years, Seattle-based vessels were central to the evolution of a number of North Pacific fisheries.

Thus in some ways Ballard is considered a 'fishing community within' Seattle. While this has historically been the case, when examined with specific respect to the Alaska groundfish fishery, the area cannot cleanly be considered a 'village within a city.' While there is a concentration of multigenerational fishing families within the area, the 'industrialization' of the Alaska groundfish fishery has tended to disperse the ties and relationships of the fishery. While support service businesses remain localized to a degree (as discussed in another section below), there would not appear to be a continuity of residential location that is applicable to the Alaska groundfish fishery that is consistent with, for example, the historic halibut fishery. This is due to the many changes within the cluster of individual species fisheries that make up the overall Alaska groundfish fishery, and particularly the relatively recent development of one of the more dominant components of the fishery, the pollock fishery. In summary then, this 'community within the community' issue is not straightforward due to the complex nature of historical ties, continuity of fishing support sector location through time, changes in the technology and methods of fishing, and industrialization of the fishery. Clearly, Seattle represents a different pattern of co-location of residence and industry with respect to the Alaska groundfish fishery than that seen in the relevant Alaska communities.

The Ballard Interbay Northend Manufacturing Industrial Center

With previous discussion as a regional context, an attempt to more closely associate a specific area of Seattle with commercial fishing (and other associated) activities now can be examined. BINMIC is planning construct that does not correspond to either the physical Port of Seattle or the historical community of Ballard. One of the fundamental purposes for the establishment of the BINMIC Planning Committee was the recognition that this area provided a configuration of goods and services that supported the historical, industrial, and maritime character. At the same time, developmental regional dynamics are promoting changes within the BINMIC area that may threaten the continued vitality of its maritime orientation. Among other objectives, the BINMIC final plan states:

The fishing and maritime industry depends upon the BINMIC as its primary Seattle homeport. To maintain and preserve this vital sector of our economy, scarce waterfront industrial land shall be preserved for water-dependent industrial uses and adequate uplands parcels shall be provided to sufficiently accommodate marine-related services and industries (BINMIC Planning Committee 1998:6).

Previous documents produced for the NPFMC have discussed the BINMIC area, and some of this information is abstracted below, for the sake of completeness. It is not vital to this discussion, however, as the BINMIC planning document has remained in the form in which it was "finalized" and the City of Seattle does not collect comparable time series measures for the BINMIC area.

As previously noted, Ballard, in northwest Seattle, is commonly identified as the center of Seattle's fishing community. This may be true in an historical residential sense, but commercial fishing-related suppliers and offices are spread along both sides of Salmon Bay-Lake Washington Ship Canal,

around Lake Union, along 15th Avenue West through Queen Anne, and then spread along the shores of Elliot Bay on both sides of Pier 91. Not surprisingly, this is also the rough outline of the formal BINMIC boundaries, which is bordered by the Ballard, Fremont, Queen Anne, Magnolia, and Interbay neighborhoods. It is defined so as to exclude most residential areas, but to include manufacturing, wholesale trade, and transportation-related businesses. It includes rail transportation, ocean and fresh-water freight facilities, fishing and tug terminals, moorage for commercial and recreational boats, warehouses, manufacturing and retail uses, and various port facilities (Terminal 86, Piers 90 and 91).

The BINMIC "Economic Analysis" document (Economic Consulting Services 1997) uses much of the same information as was reviewed above, in combination with an economic characterization of the BINMIC area, to establish that certain economic activities are especially important for that area. One of these activities is commercial fishing - although again the connection to the Alaska groundfish fishery in particular is somewhat difficult to establish concretely.

The BINMIC area is a relatively small one, but contributes disproportionately to the city and regional economy (Table 3.5-28). Again, those characteristics are part of what determined its borders. The BINMIC resident population is only 1,120 (1990 census), but there are 1,048 businesses in the area and 16,093 employees. The great majority of business firms are small - 85 percent have fewer than 26 employees, but accounted for only 30 percent of total BINMIC employment. Self-employed individuals (i.e. fishermen) are probably not included in these numbers. Employment by industry sector is displayed in Table 3.5-29.

Table 3.5-28. Relationship of Estimated BINMIC Population and Employment to Local, Regional, and State Population and Employment

Area	1990 Population	BINMIC as % of Total	1994 Employment	BINMIC as % of Total
BINMIC	1,120	100	16,093	100
City of Seattle	516,259	0	490,632	3
King County	1,507,319	0	912,038	2
Puget Sound	2,748,895	0	1,363,226	1
Washington State	4,866,692	0	2,212,594	1

Note: Percent of total reflects BINMIC's share of each area's total population and employment
Source: Economic Consulting Services 1997:14

Table 3.5-29. BINMIC Employment by Industry Sector

Industry Sector	Units	Employees	Percent of Total
Agriculture, Forestry, & Fishing	129	750	5
Mining & Construction	83	1169	7
Manufacturing	216	5322	33
Transportation & Utilities	35	1608	10
Wholesale Trade	178	2239	14
Retail Trade	121	1606	10
Finance, Insurance, & Real Estate	43	306	2
Services	233	2604	16
Government	10	489	3
TOTAL	1048	16093	100

Source: Economic Consulting Services 1997:29

An important indicator of the importance of commercial fishing and other maritime activities is the availability of commercial moorage. As of 1994, more than 50 percent of all commercial moorage available in Puget Sound was located in Seattle, and of that, more than 50 percent was in the BINMIC area (representing 30 percent of all commercial moorage in the Puget Sound area). Thus, the BINMIC area is clearly important in terms of being an area where vessels (especially larger commercial vessels) are concentrated. The Port of Seattle has concluded that only the ports of Olympia and Tacoma at present provide a significant source of moorage in Puget Sound outside of Seattle. Port Angeles may build additional capacity at some point in the future. Olympia's facility was rebuilt in 1988. Some older moorage constructed of timber piling prior to 1950 is nearing the end of its useful life and will need to be replaced. On the other hand, it is expected that much of the private old timber moorage will not be replaced, so that overall moorage capacity will decline. In the Seattle area, there has also been a dynamic whereby commercial moorage had been converted to recreational moorage. Within the BINMIC area, recreational moorage within the UI Shoreline is prohibited altogether, because of the importance of commercial activity and the danger of interference from recreational moorage. The Port has concluded that it is unlikely that any new private commercial moorage will be developed (because of cost and regulatory regime) and is examining their options (Port of Seattle 1994). As previously mentioned, the Port is pursuing a program of repairing its facilities where economically feasible (when it can be fairly well assured of a steady tenant).

The BINMIC area is fairly well "built out." The BINMIC area contains 971 acres, divided into 806 parcels with an average size of 1.043 acres, but a median size of .207 acres. Thus there are many small parcels. Public entities of one sort or another own 574.8 acres (59 percent). The Port of Seattle is the largest landowner with 166 acres, while the city has 109 acres. Private land holders own 396 acres, of which only 19.45 acres were classified as vacant - 19.27 acres in 81 parcels as vacant industrial land and .18 acres in 2 parcels as vacant commercial land. An additional 200.76 acres were classified as "underutilized," meaning that it had few buildings or other improvements on it. This classification does not mean that the land may not be in use in a fruitful way (for instance, storage of gear or other use that is not capital intensive).

Economic Consulting Services (1997) lists 85 companies that have a processing presence in Washington state (Appendix C). Of these, over half (47) are located in Seattle, with many in the surrounding communities (Bellevue, Kirkland, Redmond). Of these 47, at least 18 are located within the BINMIC, and the rest are located very near the boundaries of the BINMIC. Some examples of fairly large fishing entities that are located within BINMIC (as well as elsewhere) are Trident

Seafoods, Icicle Seafoods, Ocean Beauty Seafoods, Peter Pan, Alaska Fresh Seafood, and NorQuest Seafoods. All demonstrate some degree of integration of various fishing industry enterprises.

The BINMIC area of Seattle displays the following characteristics which indicate its important economic roles:

- it is a significant component of, and plays a vital role in, the greater Seattle economy;
- it is integrated into local, regional, national, and multinational markets;
- it is a key port for trade with Alaskan and the West Coast, Pacific, and Alaska fishing industries - and the Alaskan fishery is especially significant;
- Salmon Bay, Ship Canal, and Ballard function as a small port of its own, but also support fishing and a wide range of other maritime activities - including recreation and tourist vessels and activities; and
- it is, and has been, an area of concentration of businesses, corporations, organizations, institutions, and agencies that participate in, regulate, supply, service, administer, and finance the fishing industry.

Another way to look at the ties between the Alaska groundfish fishery and Seattle is to look at general level ties to the community as a whole rather than attempt to look at this relationship on a localized basis. The following section summarizes this approach.

General Community Links

The focus of the analysis in this section is the contribution of the Alaska groundfish fishery to Seattle. This section will examine the issue from the 'other side of the equation' - from the community 'side' of the sector-community links (and on a topical rather than a geographic focus). Unfortunately, most of the information available does not facilitate focusing on this issue with a fine resolution. Different sources address different partial aspects of this comprehensive question. Some discuss different scales of detail - local versus distant fisheries, groundfish versus other fisheries (crab, salmon, and so on), or fishing as a whole versus other maritime activity (shipping, for example). Some discuss different components of commercial fishing activity - harvest versus production, or one particular type of operation versus all others. Some concentrated on more confined, or more broadly regional, geographical areas. By collecting some of this material and piecing it together, however, some sort of understanding of the overall contribution of commercial fishing to Seattle should be possible.

Natural Resource Consultants (NRC 1986, 1999) have compiled quite comprehensive accounts of commercial fishing activity by the Seattle and Washington State fleet. They provide a brief historical narrative on the development of the various fisheries and then a more detailed summary of the status of fish stocks and historical harvest information. In 1986, the estimated ex-vessel value of the grand total of all seafood taken from local waters by Washington's local fleet was about $93 million (NRC 1986:18,19). Distant water fisheries, primarily in the Gulf of Alaska and the Bering Sea, yielded an estimated grand total of $290 million by 1,371 vessels with an aggregate crew of 6,088 (NRC 1986:28,33). The joint- venture fleet accounted for about $80 million (ex-vessel) of this, with about 81 vessels and 405 crew, with an additional 11 catcher processors accounting for another $25 million (ex-vessel) and about 330 jobs. In terms of weight or volume, 92 percent of the seafood harvested by Washington fishermen came from Alaskan waters, and only 7 percent from local waters. In terms of ex-vessel value, the Alaskan harvest was worth $283 million and local harvest $110 million (and other harvest $8 million). None of these general statements has changed to any appreciable degree in 1998/99. Alaskan distant waters fisheries still provide 95 percent of the harvest for the Washington state fishing fleet (NRC 1999).

Most of the Alaskan catch was processed to some extent in Alaska by a processor based in Seattle (mobile facilities, or on shore facilities owned by Seattle-based entities). NCR states that there were

about 130 seafood processing/wholesaling and 33 wholesale/cold storage companies in Washington in 1985, operating 250 primary processing and wholesale plants in Washington and 120 shore based or at sea in Alaska. Washington processing employment was 4,000 seasonally and in Alaska was 8,000, with half coming from Washington (NCR 1986:35-39).

A similar NRC study in 1988 found that Washington fishermen harvested about 80 percent (ex-vessel value) of their catch in distant waters, with 98 percent of that coming from Alaskan waters. About 72 Washington state vessels participated in the joint venture trawl fishery, directly employing about 360 people. There were also 43 catcher processors employing about 2,200 people, and 26 shore-based trawlers, employing about 130 people.

NRC's summary of the contribution of commercial fishing to Washington State's economy in 1988 is shown in Table 3.5-30. Local water harvest and processing accounted for about 19 percent of this, distant water fisheries and processing about 57 percent, and other processing activities by Washington companies for about 24 percent. Of the estimated 36,608 FTEs associated with this economic activity, 39 percent were attributed to the distant water fishing fleet and 40 percent to out-of-Washington-state processing. The $1.794 billion of direct and indirect benefits associated with the activities of the distant water fleet was also estimated to generate an additional $795 million of induced benefits. Similar numbers are difficult to generate from their 1999 report, which was written with a different focus, but the general relative relationships between the value of various fisheries for the fleet should remain much the same (except perhaps for crab, which may have declined in terms of economic return).

Table 3.5-30. Estimated Volume and Value of Washington Distant Water Commercial Fish Harvest, 1985 and 1988

Fishery	Harvest Volume (000 mt)		Harvest Value (million $)		Wholesale Value (million $)	
	1985	1988	1985	1988	1985	1988
Salmon	80.3	66.8	106.1	240.0	238.0	525.6
King and Tanner Crab	26.4	51.7	42.2	129.4	54.9	191.5
Longline Halibut and Blackcod	12.1	19.8	20.9	40.7	34.8	63.1
JV Trawl	720.8	802.8	78.3	120.4	78.3	120.4
Catcher Processor	111.6	546.0	24.6	103.7	61.6	334.1
Roe Herring	12.6	5.9	8.5	5.9	18.7	10.8
TOTAL	963.8	1493.0	280.6	640.1	486.3	1245.5

Note: Shore-based trawl landings are not included. Dungeness crab landings have been excluded. Volume and value estimates for salmon landings may be as much as 5 percent too high, but are retained for consistency with earlier work.

Source: NRC 1988:10

Table 3.5-31 provides summary information on economic contributions of local and distant water landings.

Table 3.5-31. Total Economic Contribution to the Washington State Commercial Fishing Industry in 1988

	(Millions of $ to Washington Economy)		
Locally landed	Landed Value	137	269
	Value added by processing	171	320
	Subtotal	308	589
Distant Water	Landed Value	639	1,257
	Value added by processing	288	537
	Subtotal	927	1,794
Non-State Landings: Washington State share of value added		405	756
TOTAL		1,640	3,139

Source: NRC 1988:16

Turning to relatively more recent data, Chase and Pascall (1996) focus on the importance of Alaska as a market for Seattle region (Puget Sound) produced goods and services. They do so by identifying particular industrial sectors that generate the bulk of these economic impacts, but they do not locate these industrial sectors in terms of particular geographic locations within the region. In their discussion of the fisheries sector, Chase and Pascall indicate that only a fraction of the regional economy is based on fishing and seafood processing industries, but that these industry sectors are concentrated in several communities and rely heavily on North Pacific (Alaskan) resources. The communities that they single out are Bellingham, Anacortes, and the Ballard neighborhood of Seattle. They say that Seattle is the major base for vessels for various fisheries - groundfish (catcher vessels, catcher processors, motherships), halibut, crab, salmon, and others. There are numerous secondary processing plants in the region, and about 60 percent of the seafood harvested and shipped south for processing moves through the Port of Tacoma (Chase and Pascall 1996:23).

The relative value of Alaskan groundfish (cod, pollock, sablefish, flounder, and other bottom fish aggregated together) for the Seattle fleet varies from year to year, but in 1994 was about 17 percent of the ex-vessel value of the Alaska/North Pacific commercial fishing harvest (Chase and Pascall 1996:26), which represented about 75 percent by harvest value, and 92 percent by weight, of all fish harvested by the Puget Sound fishing fleet (Chase and Pascall 1996:23 - citing ADF&G, NPFMC, NMFS).

Other relatively recent work (Martin O'Connell Associates 1994) indicates the wide range of activities that the Port of Seattle supports and the web of support services which commercial fishing helps support, but provides no measure of the contribution of the Alaska groundfish fishery to this support. Fishing activities are included in this study only to the extent that they are reflected in activities at Fishermen's Terminal. This may reflect some Bering Sea and Gulf of Alaska catcher vessel activity, but would greatly underestimate catcher processor, mothership, and secondary processing activities. By their estimation, fishing activity at Fishermen's Terminal in 1993 generated 4007 direct jobs (the majority of them crew positions), earning an average of $48,690 per direct job (total $195 million). Also, an additional 2,765 induced and indirect jobs were created. Fishing businesses also expended $145 million on local purchases of goods and services (Martin O'Connell Associates 1994:45-49). Again, this does not indicate the contribution of the Alaska groundfish fishery so much as it establishes that the local fishing/processing economy is densely developed. Also, if the estimates or models of vessel expenditures developed for operations using Fishermen's Terminal can be extrapolated to other vessels based in Seattle, an estimate of the contribution of the Alaska groundfish fishery may be possible. The estimate for annual expenditures in Seattle for a

factory trawler using Fishermen's Terminal was about $2 million in 1993. Miller et al. (1994) indicate that for a model surimi vessel, 1993 operating expenditures other than for crew had been in the range of $10 million annually. These would have been distributed among all the places where the vessel fished, as well as its Seattle (or Tacoma) home port, but still indicates that there is a large contribution to the regional economy from the presence of these vessels. Each vessel also represents more than 100 direct jobs and a payroll of $3 to $5 million (Miller et al. 1994:1,23).

A summary profile of the Puget Sound maritime industry, which includes commercial fishing, is included in Economic Development Council of Seattle and King County 1995 (Appendix A:39-49). Pertinent information has been abstracted here. The list of included businesses is quite long and is a good indicator of how far indirect benefits can spread:

> . . . cargo shipping, tugs and barges, commercial fishing and supply; sip and boat building; cruise ships; vessel design and repair; fueling; moorage; the fabrication and sale of marine gear such as electronics; refrigeration, hydraulics, and propulsion equipment; the operation of marinas, dry docks and boat yards; services provided by customs and insurance brokers and shipping agents; and maritime professional services including admittedly law, marine surveying and naval architecture (Appendix A:39).

It was estimated that in 1992 there were 30,000 jobs in the maritime sector within the four-county region, including: 10,000 in commercial fishing, 7,000 in fish processing, 5,000 in marine recreation, and 3,900 in boat building and repair. Average wages were estimated at $24,000 for fish processors; $32,000 for ship and boat building and repair; and $50,000 to $80,000 for commercial fishing. The sector is one noted for providing entry-level positions for those with limited education and job skills, so that they can learn a high-wage job. Each job in this sector creates or supports one to two other jobs in the regional economy, and each dollar of sector output generates about one additional dollar in output from the rest of the economy.

Seattle offers the maritime sector, and the distant water fleet in particular, a "critical mass" of businesses that allows vessel owners and other buyers a competitive choice of goods and services. The same is true to a lesser extent of other regional ports, such as Tacoma. Efficient land transportation systems are also critical, and Seattle has good rail and truck linkages (and the Port of Seattle is working to improve them).

Although the maritime sector is an important one for the region, some of its components are currently experiencing some difficult times. Other regional communities (Anacortes, Bellingham, Port Townsend) as well as locations in Alaska (closer to the distant fishing waters) are working to develop port facilities to lure vessels so that they may gain the economic benefits of the associated support and supply business. Common sorts of projects are the improvement of shoreside access, building additional moorage, or work and storage capacity.

Natural Resource Consultants revised some of their earlier work and added additional analysis focused specifically on the contributions of inshore Washington State (but also Alaska) processing plants to the Washington State economy (NRC nd, 1997). The Washington inshore seafood processing industry purchased $859.5 million of raw material in 1991, $720.1 million from Alaska and $139.4 million from Washington waters. Salmon accounted for 46 percent of the total value of these purchases, while groundfish accounted for 19 percent. The total finished product from all this raw material was worth $2.1 billion ($1.8 billion from the Alaskan raw material). Salmon accounted for $780 million of the final product's value, while groundfish accounted for $482 million. "... inshore processors operating in Alaska and Washington account for more than 50 percent of the value of U.S. seafood exports" (NRC nd:4).

Expenditure patterns for Washington (and Washington-owned Alaskan) inshore plants were modeled in these NRC documents. Inshore plants expenditures average 46 percent for their raw materials (fish

and shellfish), 16 percent for wages and benefits, 9 percent for processing materials, and 7 percent for tendering and other transportation costs. About 55 percent of these expenditures were made in Washington, 43 percent in Alaska, and 2 percent from other states. This is stated to include fish and shellfish purchased in Alaska from fishermen who home port in Washington (NRC nd:9), and economic benefits were produced from these expenditures in direct proportion to their magnitude.

The estimated total economic output from primary and secondary processing activities for all seafood to the Washington state economy in 1991 was calculated to be $1.865 billion. This was the result of three main factors:

- A substantial portion of expenditures for raw material (fish) in Alaska are made to fishermen whose home ports are in Washington.
- The majority of administrative and sales functions of processing companies are carried out in Washington.
- A major portion of support industries (equipment and packaging manufacturing) are located in Washington.

This is also the order of their significance in terms of contributions to economic benefits. In addition, a substantial amount of secondary processing takes place in Washington. This produces additional benefits to that of primary processing of about 3,635 FTEs, earnings of $81 million, and indirect benefits of $287 million. The report also points out that the Washington inshore processing sector is the second highest value food product contributor to the Washington state economy, being topped only by the apple.

NRC updated this report in 1997 and reached essentially the same conclusions. In 1996 the Washington inshore seafood industry generated 32,837 FTEs (21,308 in Washington and 11,529 in Alaska) and $791 million of earnings impacts ($532 million in Washington and $259 million in Alaska). In terms of economic output, it contributed $1.9 billion to the Washington state economy and $1.2 billion to the state of Alaska economy (NRC 1997).

As noted earlier, these data underscore the interrelatedness of the economies of Alaska and Washington and, as has been seen through the sector profiles and the ties to particular communities, the ties between Seattle and specific Alaska communities. Companies based in Washington depend on Alaska fisheries for the great bulk of the raw materials processed in Washington, and residents of both states harvest Bering Sea resources. Also, as noted earlier, the corporate offices and sales outlets of the processing companies are located in Washington, as are most of the suppliers and support services for the industry.

Limits of Geography Based Analysis

All of the Alaska groundfish fishery sectors are tied to Seattle in one way or another, although the magnitude and nature of these ties varies considerably between sectors. It is clear that Seattle, as a community is, from a number of different perspectives encompassing specific sector structures and geographically attributable industrial areas, engaged in and dependent upon the Alaska groundfish fishery. To avoid losing the importance of the fishery in the 'noise' of the greater Seattle area, the association will be described in terms of Alaska groundfish fishery industry sectors and their linkages to Seattle, as described in this section, rather than attempting an overall contextualization of the fishery and impact analysis within the metropolitan area.

Links to Specific Groundfishing Sectors

In addition to looking at port-focused and neighborhood-focused activities, a relevant way to examine the nature of Seattle's involvement with the Alaska groundfish fishery is to look at the nature of the links between Seattle as a community and the relevant individual sectors of the Alaska groundfish fishery. This type of information is specifically intended to provide a general level overview of

dynamic relationships of Seattle to all of the relevant sectors, and discuss the nature and degree of variation between sectors.

Inshore Processing

The Inshore/Offshore-3 analysis (NPFMC 1998) found that all of the larger floating processors with a continuity of participation in the Bering Sea pollock fishery during the 1990s were managed and operated out of Seattle. While moveable in theory, Alaska groundfish floating processors tend to operate in relatively fixed locations in Alaskan State waters, outside of incorporated city and organized Borough boundaries. Thus, they have minimal interaction with local Alaskan communities and can be characterized as true industrial enclaves. They employ relatively few Alaska residents, another potential measure of local community or at least state labor force interaction. This, along with the fact that these operations are supported out of the Seattle area (with some logistical support in Unalaska/Dutch Harbor, and marked reliance on air transportation links to that community), would appear to reinforce the overall ties of this subsector to Seattle as opposed to the Alaskan communities closer to their areas of operation.

As noted in earlier NPFMC documents, while the larger shoreplants which process Alaska groundfish are located in Alaska, all have multi-level ties to Seattle. All are administered from corporate headquarters in Seattle, which is the center for corporate and financial services. Thus, Seattle is the community where business decisions are made, or at least deliberated, for the Alaska shore plants (setting aside, as for other sectors, the complicating issue of degrees foreign ownership that vary by entity). This distinction should not be carried too far, however, as plant managers resident in the communities clearly have a role in corporate decision making, and executives based in Seattle also spend time in the Alaskan communities where their plants are located. Nonetheless, the role of 'Seattle' in the decision-making process, and the profound influence that process has in the Alaska shoreplant communities, is well recognized in the communities themselves.

In terms of the links between Seattle and the important inshore processing community of Unalaska/Dutch Harbor, specifically with the maturing of the fishing industry, the growth of local infrastructure and support services, and the overall changes in Unalaska/Dutch Harbor, the relationship between the communities has changed somewhat. It is no longer common to hear people express their recognition of the strong industry ties between Unalaska/Dutch Harbor and Seattle by saying that in some respects Unalaska is a 'suburb of Seattle,' as was not uncommon in the mid-1980s. The center-periphery relationship is perhaps more complex than ever for this sector. For the Bering Sea portion of the fishery, Seattle is the center of corporate operations; Unalaska/Dutch Harbor is the center of processing operations and the interdependencies are many and complex. A similar pattern applies to Kodiak for the Gulf of Alaska component of the fishery. Further, while there is some variation in this pattern with smaller inshore groundfish processors in other communities, plants in the other three of the top five Alaskan groundfish ports (Akutan, King Cove, and Sand Point) are all operated by firms managed out of Seattle.

In addition to being a decision-making and important administrative support community for the shoreplants, Seattle is also the location of some direct employment associated with the shore plant companies. While administrative shore plant sector employment in Seattle consists of relatively few jobs compared with positions at the plants themselves, the Seattle component has a greater proportion of jobs within the upper compensation range. Physical plants for secondary processing are located elsewhere in the Pacific Northwest, Alaska, other parts of the country, and overseas. Some have direct business operation connections with primary processors (both onshore and offshore).

The day-to-day management of the labor force of shore plants in Unalaska/Dutch Harbor tends to consist of year-round community residents (though these individuals were initially recruited from elsewhere). Managers of other shore plants tend to maintain homes outside of Alaska (many in the Seattle area), even though most spend most of their time in Alaska and may well qualify as Alaskan

residents. The bulk of the labor force for shore plants consists of the maintenance/support and the processing crews (although the two may well overlap). The former tends to be employed on a more year-round basis, and thus tends to be more of an Alaska resident labor force. The latter tends to have a higher turnover and, with a significant percentage of the workforce still coming from the PNW and the greater Seattle area in particular, employment ties to Seattle are still important for Bering Sea and Gulf of Alaska community-based operations. As discussed in the 1998 Inshore/Offshore-3 document (NPFMC 1998), for the inshore pollock processing sector as a whole in 1996, non-Alaskan employees accounted for approximately 80 percent of the total workforce, but this figure varies widely by plant, with the range encompassing less than 10 percent to almost 40 percent of the workforce being Alaska residents of any one operation. A similar pattern is assumed to hold for all large groundfish plants. While it is important to recall that there are significant differences between 'residence' and the location of jobs, as discussed in earlier documents, there are impacts derived from the physical location of jobs more or less independent of the formal residency status of the workforce. While specific break-outs are not available, based on interviews with plant managers, it may be safely assumed that the bulk of the non-Alaska jobs come from the PNW region, and a disproportional number of those from Washington State and the greater Seattle area.

Interviews with processing personnel conducted for the 1994 SIA (IAI 1994) would indicate that a not insignificant portion of the wages paid to workers in Alaskan plants were used to help support extended families outside of the region. While quantitative data does not exist regarding this type of wage flow, it is one more indication (particularly given a general knowledge of the industry) of the ties between the shoreplants and Seattle (and the greater West Coast area).

In terms of support services for the shore plants, Seattle would appear to play a similar role for the shoreplant sector as it does for several of the other sectors, in nature if not in relative magnitude. Shoreplants do purchase goods and services in their 'host communities' but this is highly variable by plant and community. Among the major plant sites, Unalaska/Dutch Harbor and Kodiak have the highest degree of development of local support services, but it is still the case for these communities that materials and supplies needed for the operation of the plants are not manufactured locally, and a great deal of these are shipped out of the Seattle area, given that Seattle is both the headquarters of the individual companies and the nearest major port in the Lower-48.

In terms of expenditure patterns for the shore plant sector in relation to the Seattle area, there are several main areas to consider. First, the shore plants buy fish from the catcher vessel fleet and, as detailed in the sector profile for the catcher vessel fleet, the inshore delivering fleet is primarily based in Seattle and the Washington Inland Waters region. While there has been a considerable shift in recent years in ownership patterns with respect to shore plants as a sector, with processing entities coming to own and/or control a considerable percentage of their delivering fleets, interview data would suggest that there has not been a dramatic shift in employment patterns for crew members. That is, while the locus of ownership may have changed, the patterns of employment have not appeared to do so, with most of the crew members and skippers coming out of the Seattle and Washington Inland Waters region and Oregon coastal areas. This being the case, crew compensation as a function of shore plant expenditures for Alaska groundfish disproportionately accrue to Seattle and the Pacific Northwest as a region. Second, expenditures for support services would appear to be primarily directed toward the Seattle/Pacific Northwest area. Third, corporate finances would appear to flow through Seattle, so the community would derive economic benefits from these transactions. In short, shoreplant expenditures are important to Seattle when examined on a sector basis. The localization of such expenditures within Seattle, however, is less clear.

In terms of fiscal impacts to Seattle, clearly the differences of scale between Seattle and the Alaska shoreplant communities make a great difference in relative significance of the sector. Beyond this, there are different types of fiscal inputs/taxation relationships between the companies and communities based on where the actual 'work' or 'industry' of processing takes place. In the shore

plant communities themselves, the plants, as described in the Alaska communities discussion, provide a basic fiscal underpinning for local government in the form various business, property, sales, and fish taxes. Seattle, not being the 'industrial' center of the processing, has a different relationship to the industry.

Motherships

Motherships, as a sector, have strong ties to the Seattle area. All three Bering Sea pollock mothership operations are headquartered in Seattle, and the motherships themselves are managed and supported principally out of Seattle. Hiring is done from Seattle and, while we have no statistical breakdown of the mothership labor force, many come from the Lower-48 and most are reportedly from the Pacific Northwest. All, and especially the mothership with a CDQ group partner and partial CDQ group ownership, have strong initiatives to hire Alaskans, and especially Alaskans from Western Alaska.

Given that the operations are headquartered in Seattle, the community acts as a corporate center for this industry sector, in terms of corporate and financial services support. There are a few administrative/office positions for each company in Seattle, but these account for less than 10 percent of the workforce in every case, even at the low end of operational range staffing aboard the vessels.

In terms of fiscal impacts to communities, like catcher processors, motherships are subject to the resource landing tax in Alaska, so they developed a different fiscal relationship to Alaska communities. Individual operations varied the location and number of offloads, so there was variability between operations in this regard, but motherships in general appeared to offload fewer times in Alaskan communities than did catcher processors. At least one was reported to sometimes take a product directly to Japan, and all reported taking their 'last load' to a non-Alaskan port.

The catcher vessel fleet for motherships tends to have Seattle owners and to be maintained in the Seattle/Pacific northwest region. Some vessels have California or Alaska owners, or may have some connections with Oregon. Regardless of ownership or "home port" designation, many of these catcher vessels normally remain in Alaskan waters between the last pollock season of the year and the first pollock season of the following year, unless there is a compelling reason for them to go to Seattle. Those mothership catcher vessels with Pacific whiting permits have an incentive to go south after the first pollock season, and those from that region are most likely to have such permits. They will normally schedule maintenance calls in Seattle during this period. Mothership catcher vessels do participate in more fisheries than do motherships themselves itself, but Alaska groundfish (specifically pollock) is their most important fishery.

Mothership labor forces are predominately Seattle-based. Offices are maintained in Seattle, one in conjunction with its pollock CDQ partner and its parent onshore processing company. Workforces range from 80 to 140 persons on the two smaller operations to 190 to 220 persons on the larger operation. An increasing number of these employees are reported to be from Western Alaska, especially on the CDQ partner vessel. The larger operation employs a crew of 40 to 60 people to maintain the vessel and thus work 6 to 7 months a year. Office staff work year-round, and the rest of the crew works only while the vessel is actively fishing or in transit (estimated at approximately 90 days).

All mothership operations report using Seattle as their primary logistical base. That is, they will leave Seattle with as many of the supplies that they will need for the fishing season as possible. All mothership operations contrasted this with the pattern of their catcher vessel fleet, which obtains most of its logistical support from Alaskan ports. The mothership reportedly does not carry supplies for its catcher vessel fleet (citing lack of storage capacity aboard their vessels). Motherships have a limited number of opportunities to take on additional supplies in Alaskan ports, since they normally do not have many offloads in Alaskan ports. Linkages to Alaskan communities are thus mostly through the

resource landing tax paid on offloaded product and the activities of their catcher vessel fleet. Most mothership community linkages are with Seattle.

Catcher-Processor Sector

Corporate management and operations of the catcher-processor fleet is concentrated in the Seattle and Puget Sound area, as is ownership. These vessels are typically not present in Alaska when not working, although there have been a number of exceptions for ship work in Alaskan ports. Even these vessels for the most part use Seattle or Pacific Northwest facilities for regular maintenance and support. This pattern has been modified in recent years by the investment of five of the six CDQ groups in the offshore sector. These ownership shifts have affected some aspects of the operations of these vessels, but not the centralization of management and support services for them in Seattle. The sector industry association has established its headquarters in Alaska, and has made targeted hiring efforts in Anchorage as well as the CDQ regions, although employment continues to be predominately from Washington state.

Catcher-processors harvest and process Alaska groundfish in Alaskan waters and, although Seattle based, have fiscal ties to Alaska through the payment of a resource landing tax on relevant North Pacific groundfish product whether or not physically offloaded in Alaskan jurisdictions. For example, as noted in the discussion of Alaskan communities, the resource landing tax is a significant source of income to the community of Unalaska/Dutch Harbor. Some catcher processors will land their last load in Seattle, since many must make the trip anyway, but this varies by operation, and depends on a number of variables such as ultimate market, shipping costs, timing with respect to participation in other fisheries, and so on. Those catcher processors which participate in other fisheries (after pollock) producing fillets may tend to land more of their total pollock production in Alaska.

Catcher processor vessels are moored and maintained in the Seattle/Pacific Northwest area. The Port of Seattle has made a sizeable investment in renovating part of Pier 91, partly in response to the need of the largest catcher processor company for moorage and other workspace for its operations. The ability and desire of this company to sign a long-term lease enabled the Port of Seattle to finance these renovations, so there is a direct link seen between the Alaska groundfish fishery and port development. The Puget Sound area, and the Port of Seattle within the Puget Sound area, provides the majority of moorage available for the Alaska groundfish fishery fleet (and especially so for catcher processors). Tacoma is also a significant node of activity.

Hiring for employment within the fleet occurs both in Alaska and the Lower-48. Turnover varies from year-to-year and is highly dependent on levels of compensation. Some people make careers of working on catcher processors, while others treat it as a seasonal activity or a "stage of life" activity. The one group of employees that was readily identifiable were those Alaskans hired from western Alaskan villages, primarily by fishing operations with CDQ partnerships. At least a limited number of individuals have relocated to Seattle, based on catcher processor employment, although interview data would indicate that they maintain contacts with relatives and return to the village at frequent intervals. Management and the vessel maintenance labor force, to the degree that such work does not require work in a shipyard, is clearly concentrated in Seattle. Interview information from the 1998 Inshore/Offshore-3 SIA (NPFMC 1998), derived from contact with five companies with 27 vessels, supported this general picture. Most employees are from Washington or other western states, with Seattle being the major (or only) point of hire. For those operations with CDQ partners, this was generally modified by an effort to incorporate CDQ group residents into the fishing (and other) operations through entry level positions and intern training programs. Targeted hiring efforts also occur out of Anchorage, the location of the industry sector association headquarters. The catcher-processor sector felt significant employment impacts as a result of AFA. Total employment has decreased, but according to management interview data, those still working are working more hours and thus earning a higher yearly total than before. This, of course, does not minimize the impact on

individuals and families of the loss of employment for an estimated 1,500 to 2,000 individuals as an early and direct result of AFA.

Available information on expenditure patterns of the catcher processor fleet is fairly sketchy. Prior to the formation of co-ops, the catcher-processor sector fleet, on average, purchased 10 percent of its open-access pollock from the catcher vessel sector fleet, which is itself predominately Seattle based. Under the co-op system, however, there has been a fundamental change in this pattern, with additional catch capacity becoming much less important. Some drydock work has recently been done in Alaskan ports, specifically in Ketchikan, and in-season work also takes place in Alaska. Seattle is the only locale with a concentration of facilities that can provide these services for a large number of vessels, with the possibility for competitive bidding. Interviews with most firms for the 1998 Inshore/Offshore-3 SIA (NPFMC 1998) resulted largely in general level information; however the overall pattern was clear. Catcher processor operators consistently indicated that most expenditures were made in or through Seattle or the Puget Sound area - with in-season support from Alaskan sources as required. They were quick to point out that they needed to purchase large amounts of fuel in Unalaska/Dutch Harbor, paid a great amount of dock fees and resource landing taxes there, and in general provided a good deal of support for that community, both through fees and taxes and direct expenditures. At the same time, like all other businesses, their operations are managed to minimize expenses, in most cases entailing supplying the vessel as much as possible from Seattle.

The community economic/fiscal links of the catcher/processor sector can be summarized by the overall dichotomy or comparison of (Seattle) financial, most maintenance, and initial supply costs as opposed to (Alaskan and especially Unalaska) in-season operational costs. The majority of the labor force is in some way linked to Washington State or the Pacific Northwest. Thus, in terms of absolute value, the sector expends a great deal more, to a much wider economic network, in Seattle than it does in Alaska. The difference in the scales of the economies in Seattle and Alaska (especially for the community of Unalaska/Dutch Harbor), however, make the catcher processor sector economically important in Alaska in general, and the community of Unalaska/Dutch Harbor in particular. While also important in Seattle, the overall community effects of changes in the operations of this sector are less because of the sheer size of the Seattle economy. There may be identifiable effects on subsections of Seattle's economy, such as the Port, shipyards, or other services concentrated in Ballard.

Catcher Vessels

Aside from the ownership-related ties already discussed, many of the larger class groundfish catcher vessels have other ties to the greater Seattle area. Patterns for smaller vessels are much more variable and Alaska focused, as shown in the ownership information previously discussed. Most of the vessels in the larger classes of catcher vessels will have overhauls and other major work done in Seattle (or an alternate port in Washington, or Portland, Readsport, or Newport in Oregon), but may make the trip only every two years if they do not usually participate in PNW coast fisheries on a regular basis. This is also a tendency which seems to accompany shore plant acquisition of more pollock-specialized catcher vessels. This, and the decreasing fishing opportunities in Pacific coast fisheries, are also factors in this trend. Depending on the degree of shelter provided by moorage at the different plant locations, the pollock-focused catcher vessels may tend to tie up at Alaskan shore plants between seasons. Limited moorage for catcher vessels participating in the Alaska groundfish fishery exists in other Alaskan ports (Kodiak, Sand Point), but only to a very limited extent. Catcher vessels delivering to motherships or offshore tend to go to Seattle every year if they participate in the Pacific coast hake fishery. Otherwise, they also tend to stay in Alaskan waters when they do not need major shipyard work and will look for Alaskan fisheries to 'fill in' their annual harvest cycle. This trend has the effect of increasing the use of air flights to connect crew with vessels, so that an indirect effect is to increase the availability of and support for transportation links for various Alaskan fishery communities (a trend also seen to a much larger degree with the 'transient' components of the shore plant workforces).

No systematic information on the geographic origin of overall sector employment is available, but interview information developed for the Inshore/Offshore-3 SIA (NPFMC 1998) indicates that for the larger classes of catcher vessels, most of the crew is from the Washington/Oregon area, with a concentration in Seattle. This was true even though many catcher vessels apparently spent most of their time in Alaskan waters and may tie up in Alaskan ports more than in Washington or Oregon. This may reflect an historical situation, before Alaskan moorage was available and boats did return to Seattle every year, combined with continued Washington/Oregon ownership.

Catcher vessel expenditure patterns are difficult to generalize. For the smaller vessel classes that tend to be Alaskan in ownership, Alaska-based expenditures are the norm. For the larger classes, in-season operational expenditures are made in Alaskan ports. Catcher vessels tend to tie up in Alaskan waters when possible, but maintenance requiring shipyard work and overhauls tend to take place in or near the owner's physical residence, which in most cases is the Pacific Northwest. Crew tends to reflect the boat's "community of origin" as well, so that the overall revenue flow for most larger catcher vessels is oriented to the Washington/Oregon area, and for the Alaska groundfish fishery, more specifically to Washington. These economic effects are distributed more widely, and to a wider range of communities, than for the processing sectors considered above.

Summary: Seattle and North Pacific/Groundfish Socioeconomic Issues

As noted in the introduction to this section, Seattle is an analytic challenge, in terms of a socioeconomic description and a social impact assessment directly related to the Alaska groundfish fishery, because of its scale and diversity. Seattle is arguably more involved in the Alaska groundfish fishery than any other community, but from a comparative perspective, Seattle is arguably among the least involved of the communities considered. The sheer size of Seattle dilutes the overall impact of the Alaska groundfish fishery jobs and general economic contributions when viewed on a community scale, in contrast to Alaskan communities where such jobs and revenues are a much greater proportion of the total economic base of the community. This section has attempted to portray the complexities of the ties of the Alaska groundfish fishery to Seattle in terms of sectors, specific portions of the economy, and on a geographically localized basis.