

ALASKA LEGISLATURE SPECIAL COMMITTEE/SUBJECT FILES 8672

2295 SCOMM 95: HOUSE SPEC.COMM.ON FISHERIES 1995-1996

Table 3-4
Economic Impact of the Shoreside Processing Industry
on the Alaska Peninsula during the Third Quarter, 1993

Employment	Avg. Number of Employees/Month	1,155		Percent of
	Total Processing Payroll	13,517,116		Total
	Fringe benefits, workers comp., etc. (30% of payroll)	4,055,135		
	Airfare	173,061		
	SUB-TOTAL	17,745,312	17,745,312	42%
Purchases	Consumables	1,760,600		
	Services	936,380		
	Electric	28,517		
	Water	3,000		
	Sewer	-		
	Phone	42,289		
	Trash Removal	18,900		
	Other	-		
	SUB-TOTAL	2,789,686	2,789,686	7%
Taxes	State Raw Fish Tax	551,927		
	Local Raw Fish Tax	306,626		
	Other State Taxes (corporate income, ASMI, property, licenses, etc.)	204,417		
	SUB-TOTAL	1,062,970	1,062,970	3%
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	-		
	Brown/Blue	-		
	Bairdi	-		
	Opilio	-		
	Dungeness	-		
	Misc. Shellfish	275,000		
Groundfish	Pollock	1,282,082		
	Pacific Cod	406,917		
	Flounders	-		
	Rockfish	-		
	Misc. Groundfish	-		
Salmon	Chinook	341,664		
	Sockeye	12,720,677		
	Coho	827,376		
	Pink	3,489,818		
	Chum	212,671		
Herring	Spawn-on-Kelp	-		
	Food/Bait	-		
	Sac Roe	-		
Other	Sablefish	371,916		
	Halibut	513,604		
	Shrimp	-		
	SUB-TOTAL	20,441,724	20,441,724	49%
	TOTAL DIRECT EXPENDITURES		42,039,691	100%
	AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			

TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly) 105,099,227

Table 3-5
Economic Impact of the Shoreside Processing Industry
on the Alaska Peninsula during the Fourth Quarter, 1993

Employment	Avg. Number of Employees/Month	437		Percent
	Total Processing Payroll	1,980,225		of
	Fringe benefits, workers comp., etc. (30% of payroll)	594,068		Total
	Airfare	167,546		
	SUB-TOTAL	2,741,839	2,741,839	14%
Purchases	Consumables	1,689,000		
	Services	617,580		
	Electric	28,517		
	Water	9,000		
	Sewer	-		
	Phone	48,489		
	Trash Removal	22,000		
	Other	-		
	SUB-TOTAL	2,414,586	2,414,586	12%
Taxes	State Raw Fish Tax	374,936		
	Local Raw Fish Tax	208,298		
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	138,865		
	SUB-TOTAL	722,100	722,100	4%
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	11,922,533		
	Brown/Blue	-		
	Coastal	-		
	Oysters	-		
	Dungeness	-		
	Misc. Shellfish	275,000		
Groundfish	Pollock	1,282,082		
	Pacific Cod	408,917		
	Flounder	-		
	Rockfish	-		
	Misc. Groundfish	-		
Salmon	Chinook	-		
	Sockeye	-		
	Coho	-		
	Pink	-		
	Chum	-		
Herring	Spores-on-Kelp	-		
	Foodfish	-		
	Sac Roe	-		
Other	Subfish	-		
	Salmon	-		
	Shrimp	-		
	SUB-TOTAL	13,886,532	13,886,532	71%
	TOTAL DIRECT EXPENDITURES		18,765,056	100%
	AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			

TOTAL ECONOMIC IMPACT (\$3.78 generated for every \$1 spent directly) \$1,812,040

Table 3-6
1993 Purchases of Fish and Shellfish in the Alaska Peninsula
by the Shoreside Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	3,043,792	3,043,792
Brown/Blue	-	-	-	-	-
Bairdi	2,022,131	-	-	-	2,022,131
Opilio	15,311,986	3,827,997	-	-	19,139,983
Dungeness	-	-	-	-	-
Misc. Shellfish	101,927	101,927	101,927	101,927	407,709
Pollock	15,083,322	15,083,322	15,083,322	15,083,322	60,333,288
Pacific Cod	22,606,486	18,085,189	2,260,649	2,260,649	45,212,973
Flounders	70,955	70,955	-	-	141,910
Rockfish	26,279	-	-	-	26,279
Misc. Groundfish	-	-	-	-	-
Chinook	-	444,296	444,296	-	888,592
Sockeye	-	37,055,655	15,880,995	-	52,936,650
Coho	-	1,631,905	1,631,905	-	3,263,809
Pink	-	11,594,078	27,052,850	-	38,646,928
Chum	-	7,333,484	814,832	-	8,148,316
Spawn-on-Kelp	-	-	-	-	-
Food/Bait	-	1,129,564	-	-	1,129,564
Sac Roe	-	1,265,780	-	-	1,265,780
Sablefish	-	446,299	148,766	-	595,066
Halibut	-	1,768,000	442,000	-	2,210,000
Shrimp	-	-	-	-	-
Total	55,223,087	99,838,432	63,861,541	20,489,690	239,412,770
	23%	42%	27%	9%	100%

Review of Impacts in Bristol Bay

4.1 Introduction

Tables 4-1 through 4-5 display the annual and quarterly economic impact of the shoreside seafood processing industry in Bristol Bay during 1993. The total impact was \$549 million, of which \$220 million were direct expenditures. Of this amount, \$173 million was spent on purchases of fish and shellfish, \$22 million was spent on labor, \$13 million was spent on purchases of goods and services, and \$12 million was spent on tax related items.

Figure 4-1 shows the direct expenditures by quarter, while Figure 4-2 shows the direct expenditures from each category as a percent of the total.

On an annual basis, shoreside seafood processing companies spent \$0.60 for every pound of fish and shellfish processed during 1993.

4.2 Purchases of Fish and Shellfish

Table 4-6 shows the poundage of fish and shellfish purch. used by quarter in the Bristol Bay during 1993; for ex-vessel expenditures by the shoreside processing industry by species and quarter during 1993, see the "Fish Purchases" categories of Tables 3-1 through 3-5 for detailed information. Figures 4-3 and 4-4 display the percentage distribution of fish and shellfish purchased by the shoreside processing industry during 1993 by major species group in pounds purchased and value respectively.

During 1993, 287 million pounds of fish and shellfish were purchased in the region. The dominant species consisted of sockeye salmon (244 million pounds),⁶ followed by herring (36 million

Figure 4-1
Distribution of Direct Expenditures by the Shoreside Processing Industry in Bristol Bay during 1993

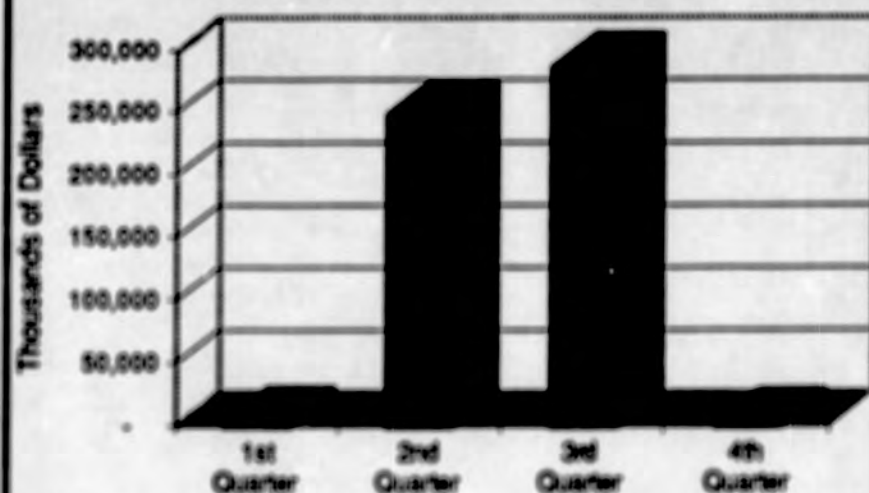
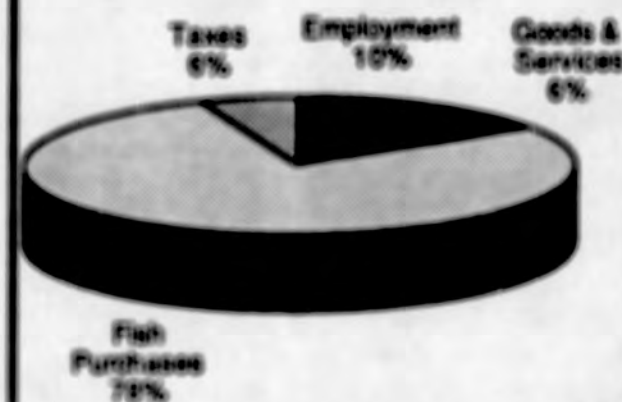


Figure 4-2
Percent Distribution of Expenditures by the Shoreside Processing Industry in Bristol Bay during 1993



pounds) and chum salmon (3 million pounds). Harvests of other species were inconsequential.

Sockeye salmon generated \$145 million in ex-vessel payments, or 93% of the total ex-vessel payments during the year.

Figure 4-3

Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Bristol Bay during 1993
(in percent of total pounds)

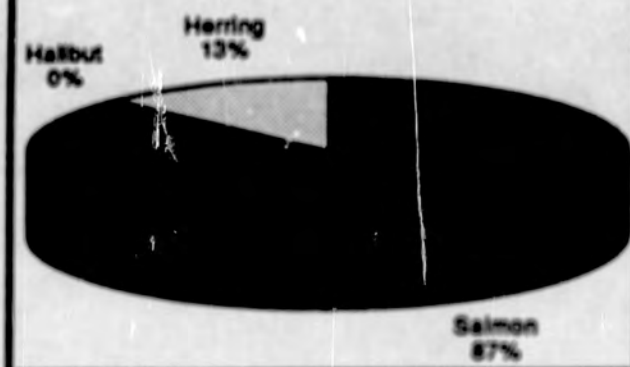
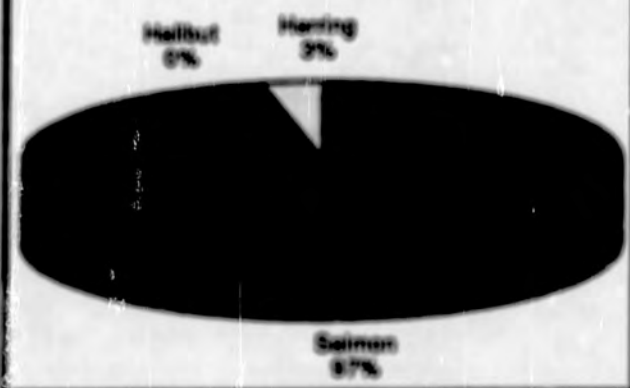


Figure 4-4

Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Bristol Bay during 1993
(in percent of total value)



second quarter, \$5.9 million for the third quarter, and \$1 million for the fourth quarter.

By category, the expenditures consisted of \$5.5 million for consumables, \$5.4 million for services, \$893,000 for electricity, \$85,000 for water, \$37,000 for sewer, and \$1.25 million for other purchases.

4.5 Taxes

State and local fish taxes of approximately \$11.8 million were paid during 1993. Of this amount, \$4.9 million was paid directly to local municipalities through local taxes or from the state through raw fish tax revenue sharing.

4.3 Employment

The average number of individuals employed on a monthly basis during 1993 was 284. This figure is not representative of actual employment opportunity since there is little or no fishery employment available during the late fall and winter months. Total wages and benefits paid to employees during the year were \$21.5 million.

4.4 Purchases of Goods and Services

A total of \$13.2 million in goods and services were purchased by the shoreside seafood processing companies in Bristol Bay during 1993. On a quarterly basis, the expenditures consisted of \$1.75 million for the first quarter, \$4.5 million for the

Table 4-1
Economic Impact of the Shoreside Processing Industry
on the Bristol Bay during 1993

Employment	Peak Monthly Employment	1,818		Percent
	Avg. Number of Employees/Month	284		of
	Total Processing Payroll	16,443,721		Total
	Fringe benefits, workers comp., etc. (30% of payroll)	4,933,116		
	Airfare	333,369		
	SUB-TOTAL	21,710,207	21,710,207	10%
Purchases	Consumables	5,525,990		
	Services	5,397,732		
	Electric	892,792		
	Water	65,338		
	Sewer	37,014		
	Phone	908,335		
	Trash Removal	37,434		
	Other	300,486		
	SUB-TOTAL	13,179,611	13,179,611	6%
Taxes	State Raw Fish Tax	4,666,643		
	Local Raw Fish Tax	2,592,580		
	Other State Taxes (corporate income, ASMG, property, licenses, etc.)	4,585,529		
	SUB-TOTAL	11,844,752	11,844,752	5%
Fish (Ex-Vessel Value of Purchase)				
	Cod			
	Red King	-		
	Brown/Blue	-		
	Baird	-		
	Opilio	-		
	Chapman	-		
	Misc. Shellfish	-		
	Groundfish			
	Pollock	-		
	Pacific Cod	-		
	Pompano	-		
	Rockfish	-		
	Misc. Groundfish	-		
	Salmon			
	Chinook	1,132,229		
	Sockeye	164,676,280		
	Coho	262,000		
	Pink	178		
	Chum	1,182,129		
	Shrimp			
	Spiny-tail	267,301		
	Toadfish	2,719		
	Sea Roe	1,290,808		
	Crab			
	Subarctic	-		
	Hairy	81,280		
	Striped	-		
	SUB-TOTAL	172,826,440	172,826,440	79%
	TOTAL DIRECT EXPENDITURES		318,976,210	100%
	ADDITIONAL DIRECT EXPENDITURES PER POUND PROCESSED			

TOTAL VUL. ECONOMIC IMPACT (\$1.2M generated for every \$1 spent) (Source: DNR, 1993, 1997)

Table 4-2
Economic Impact of the Shoreside Processing Industry
on the Bristol Bay during the First Quarter, 1993

Employment	Avg. Number of Employees/Month	36		Percent
	Total Processing Payroll	132,711		of
	Fringe benefits, workers comp., etc. (30% of payroll)	39,813		Total
	Airfare	339		
	SUB-TOTAL	172,864	172,864	9%
Purchases	Consumables	384,460		
	Services	1,118,254		
	Electric	112,958		
	Water	11,781		
	Sewer	6,701		
	Phone	83,463		
	Trash Removal	3,340		
	Other	27,210		
	SUB-TOTAL	1,748,168	1,748,168	91%
Taxes	State Raw Fish Tax	-		
	Local Raw Fish Tax	-		
	Other State Taxes (corporate income, ASME, property, licenses, etc.)	-		
	SUB-TOTAL	-	-	0%
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	-		
	Brown/Blue	-		
	Hard	-		
	Oyster	-		
	Dungeness	-		
	Mini. Shellfish	-		
Groundfish	Pollock	-		
	Pacific Cod	-		
	Flounder	-		
	Rockfish	-		
	Mini. Groundfish	-		
Salmon	Chinook	-		
	Sockeye	-		
	Coho	-		
	Pink	-		
	Chum	-		
Shrimp	Spiny-necked	-		
	Penaeid	-		
	Sea Roe	-		
Other	Salmonids	-		
	Shellfish	-		
	Shrimp	-		
	SUB-TOTAL	-	-	0%
	TOTAL DIRECT EXPENDITURES		1,921,032	100%
	AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			

TOTALS ECONOMIC IMPACT (IN \$) PRESENTED FOR 1993 BY STATE (ALASKA) & REGION

Table 4-3
Economic Impact of the Shoreside Processing Industry
on the Bristol Bay during the Second Quarter, 1993

Employment	Avg. Number of Employees/Month	302		Percent
	Total Processing Payroll	947,072		of
	Fringe benefits, workers comp., etc. (30% of payroll)	284,122		Total
	Airfare	194,306		
	SUB-TOTAL	1,425,500	1,425,500	1%
Purchases	Consumables	2,316,348		
	Services	1,489,879		
	Electric	310,954		
	Water	33,043		
	Sewer	16,813		
	Phone	230,175		
	Trash Removal	16,842		
	Other	109,638		
	SUB-TOTAL	4,523,691	4,523,691	5%
Taxes	State Raw Fish Tax	2,398,675		
	Local Raw Fish Tax	1,332,597		
	Other State Taxes (corporate income, ASME, property, licenses, etc.)	888,398		
	SUB-TOTAL	4,619,670	4,619,670	5%
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	-		
	Brown/Blue	-		
	Hard	-		
	Oystro	-		
	Dungeness	-		
Groundfish	Misc. Shellfish	-		
	Pollock	-		
	Pacific Cod	-		
	Flounder	-		
	Rockfish	-		
Salmon	Misc. Groundfish	-		
	Chinook	566,112		
	Sockeye	82,304,675		
	Coho	26,236		
	Pink	0		
Herring	Chum	337,639		
	Spawners King	267,311		
	Food/Fuel	2,719		
	Soc. Res	3,390,818		
	Subtotal	-		
Other	Salmon	24,675		
	Shrimp	-		
	SUB-TOTAL	88,838,790	88,838,790	89%
TOTAL DIRECT EXPENDITURES			93,458,459	100%
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED				

TOTAL DIRECT EXPENDITURES PER POUND PROCESSED (1993) (1992) (1991) (1990) (1989) (1988) (1987) (1986) (1985) (1984) (1983) (1982) (1981) (1980) (1979) (1978) (1977) (1976) (1975) (1974) (1973) (1972) (1971) (1970) (1969) (1968) (1967) (1966) (1965) (1964) (1963) (1962) (1961) (1960) (1959) (1958) (1957) (1956) (1955) (1954) (1953) (1952) (1951) (1950) (1949) (1948) (1947) (1946) (1945) (1944) (1943) (1942) (1941) (1940) (1939) (1938) (1937) (1936) (1935) (1934) (1933) (1932) (1931) (1930) (1929) (1928) (1927) (1926) (1925) (1924) (1923) (1922) (1921) (1920) (1919) (1918) (1917) (1916) (1915) (1914) (1913) (1912) (1911) (1910) (1909) (1908) (1907) (1906) (1905) (1904) (1903) (1902) (1901) (1900) (1899) (1898) (1897) (1896) (1895) (1894) (1893) (1892) (1891) (1890) (1889) (1888) (1887) (1886) (1885) (1884) (1883) (1882) (1881) (1880) (1879) (1878) (1877) (1876) (1875) (1874) (1873) (1872) (1871) (1870) (1869) (1868) (1867) (1866) (1865) (1864) (1863) (1862) (1861) (1860) (1859) (1858) 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Table 4-4
Economic Impact of the Shoreside Processing Industry
on the Bristol Bay during the Third Quarter, 1993

Employment	Avg. Number of Employees/Month	752		Percent of Total
	Total Processing Payroll	15,237,934		
	Fringe benefits, workers comp., etc. (30% of payroll)	4,571,380		
	Airfare	138,723		
	SUB-TOTAL	19,948,037	19,948,037	17%
Purchases	Consumables	2,348,640		
	Services	2,719,787		
	Electric	178,834		
	Water	37,014		
	Sewer	10,500		
	Phone	449,455		
	Trash Removal	16,752		
	Other	109,428		
	SUB-TOTAL	5,870,411	5,870,411	5%
Taxes	State Raw Fish Tax	2,267,969		
	Local Raw Fish Tax	1,259,983		
	Other State Taxes (corporate income, ASMI, property, licenses, etc.)	839,988		
	SUB-TOTAL	4,367,940	4,367,940	4%
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	-		
	Brown/Blue	-		
	Hard	-		
	Opilio	-		
	Dungeness	-		
	Misc. Shellfish	-		
Groundfish	Pollock	-		
	Pacific Cod	-		
	Flounders	-		
	Rockfish	-		
	Misc. Groundfish	-		
Salmon	Chinook	566,112		
	Sockeye	82,304,675		
	Coho	236,300		
	Pink	161		
	Chum	834,491		
Herring	Spruce-on Kelp	-		
	Food/Fuel	-		
	Sun Rice	-		
Other	Shellfish	-		
	Hallibut	57,108		
	Shrimp	-		
	SUB-TOTAL	83,998,646	83,998,646	74%
	TOTAL DIRECT EXPENDITURES		114,185,234	100%
	AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			

TOTAL ECONOMIC IMPACT (\$4.90 generated for every \$1 spent directly) 281,613,083

Table 4-5
Economic Impact of the Shoreside Processing Industry
on the Bristol Bay during the Fourth Quarter, 1993

Employment	Avg. Number of Employees/Month	48		Percent
	Total Processing Payroll	126,004		of
	Fringe benefits, workers comp., etc. (30% of payroll)	37,801		Total
	Airfare	-		
	SUB-TOTAL	163,805	163,805	14%
Purchases	Consumables	476,542		
	Services	64,303		
	Electric	290,046		
	Water	3,500		
	Sewer	3,000		
	Phone	145,242		
	Trash Removal	500		
	Other	54,210		
	SUB-TOTAL	1,037,342	1,037,342	86%
Taxes	State Raw Fish Tax	-		
	Local Raw Fish Tax	-		
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	-		
	SUB-TOTAL	-	-	0%
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	-		
	Brown/Blue	-		
	Bairdi	-		
	Opilio	-		
	Dungeness	-		
	Misc. Shellfish	-		
	Pollock	-		
	Pacific Cod	-		
	Flounders	-		
	Rockfish	-		
Groundfish	Misc. Groundfish	-		
	Salmon	-		
	Chinook	-		
	Sockeye	-		
	Coho	-		
Herring	Pink	-		
	Chum	-		
	Spawn-on-Kelp	-		
	Food/Bait	-		
Other	Sac Roe	-		
	Sablefish	-		
	Holbrock	-		
	Shrimp	-		
	SUB-TOTAL	-	-	0%
TOTAL DIRECT EXPENDITURES			1,201,147	100%
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED				

TOTAL ECONOMIC IMPACT (\$1.58 generated for every \$1 spent directly) 3,002,867

Table 4-6
1993 Purchases of Fish and Shellfish in Bristol Bay
by the Shoreside Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	-	-
Brown/Blue	-	-	-	-	-
Bairdi	-	-	-	-	-
Opilio	-	-	-	-	-
Dungeness	-	-	-	-	-
Misc. Shellfish	-	-	-	-	-
Pollock	-	-	-	-	-
Pacific Cod	-	-	-	-	-
Flounders	-	-	-	-	-
Rockfish	-	-	-	-	-
Misc. Groundfish	-	-	-	-	-
Chinook	-	743,906	743,906	-	1,487,811
Sockeye	-	121,752,478	121,752,478	-	243,504,956
Coho	-	50,202	451,816	-	502,018
Pink	-	139	1,255	-	1,394
Chum	-	1,618,275	3,775,976	-	5,394,251
Spawn-on-Kelp	-	382,953	-	-	382,953
Food/Bait	-	100,754	-	-	100,754
Sac Roe	-	35,748,677	-	-	35,748,677
Sablefish	-	-	-	-	-
Halibut	-	18,238	42,554	-	60,792
Shrimp	-	-	-	-	-
Total	-	160,415,622	126,767,984	-	287,183,606
	0%	56%	44%	0%	100%

Review of Impacts in Bering Sea/Aleutian Region

5.1 Introduction

Tables 5-1 through 5-5 display the annual and quarterly economic impact of the shoreside seafood processing industry in the Aleutians/Bering Sea region during 1993. This region consists of Unalaska/Dutch Harbor, Akutan, the Aleutians West area, and the Pribilof Islands. The total impact was \$1.1 billion, of which \$493 million were direct expenditures. Of this amount, \$282 million was spent on purchases of fish and shellfish, \$109 million for labor, \$15.7 million on purchases of goods and services, and \$17.5 million was spent on tax related items. Figure 5-1 shows the direct expenditures by quarter, while Figure 5-2 shows the direct expenditures from each category as a percent of the total.

On an annual basis, shoreside seafood processing companies spent \$0.33 for every pound of fish and shellfish processed during 1993.

5.2 Purchases of Fish and Shellfish

Table 5-6 shows the poundage of fish and shellfish purchased by quarter in the Aleutian region during 1993; for ex-vessel expenditures by the shoreside processing industry by species and quarter during 1993, see the "Fish Purchases" categories of Tables 5-1 through 5-5 for detailed information. Figures 5-3 and 5-4 display the percentage distribution of fish and shellfish purchased by the shoreside processors by major species group in pounds purchased and value respectively.

During 1993, 1.3 billion pounds of fish and shellfish were purchased in the region. The domi-

Figure 5-1
Distribution of Direct Expenditures by the Shoreside Processing Industry in Bering Sea/Aleutian Region during 1993

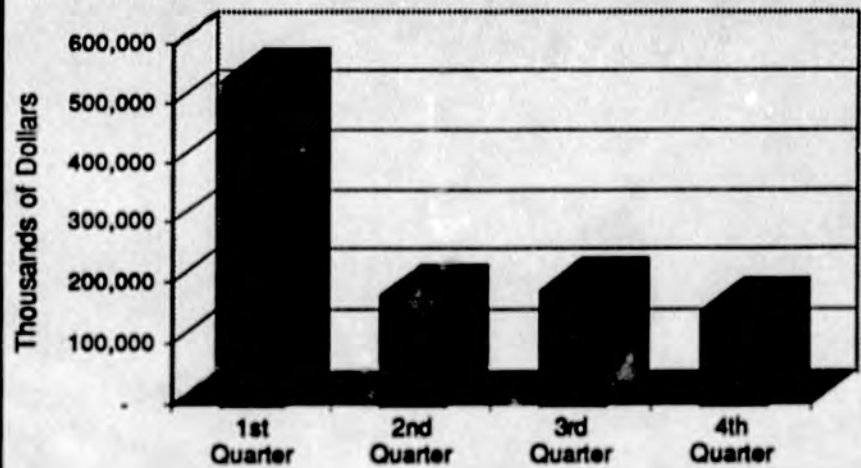
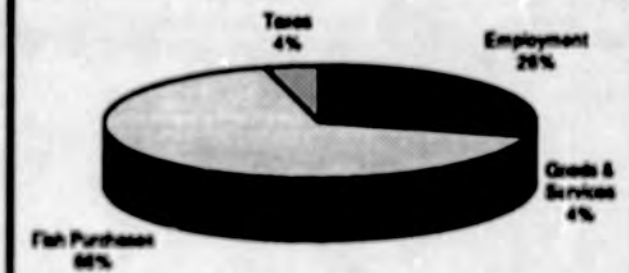


Figure 5-2
Percent Distribution of Expenditures by the Shoreside Processing Industry in Bering Sea/Aleutian Region during 1993



inant species consisted of pollock (1 billion pounds), opilio Tanner crab (128 million pounds), Pacific cod (74 million pounds), and bairdi Tanner crab (28 million pounds). On a quarterly basis, 44% (563 million pounds) were processed in the first quarter, 6% (77 million pounds) were processed in the second quarter, 49% (624 million pounds) were

Figure 5-3
Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Bering Sea/Aleutian Region during 1993
(In percent of total pounds)

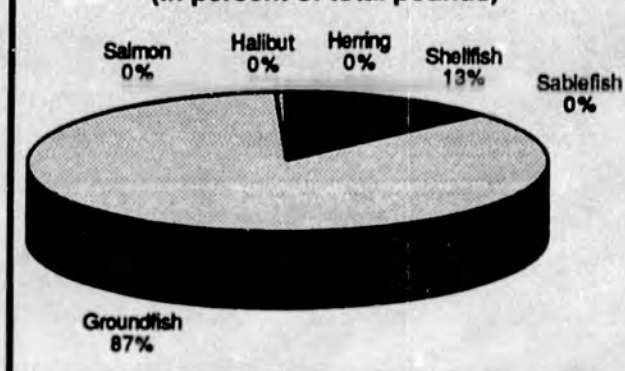
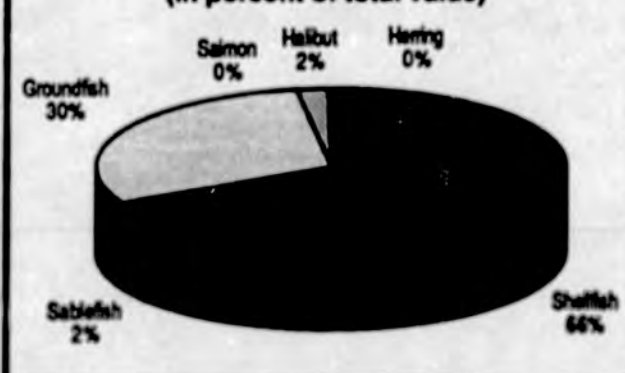


Figure 5-4
Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Bering Sea/Aleutian Region during 1993
(In percent of total value)



processed in the third quarter, and 1% (18 million pounds) were processed in the fourth quarter.

In terms of ex-vessel values, opilio Tanner crab generated the greatest overall revenue (\$596.6 million), followed by pollock (\$72 million), bairdi Tanner crab (\$49.7 million), red king crab (\$19.5 million), and Pacific cod (\$13.5 million).

5.3 Employment

The average number of individuals employed on a monthly basis during 1993 was 3,154. Employment was fairly stable through the year, although the fourth quarter was slower than the remainder of the year. Peak employment occurred in February and March, when approximately 5,150

jobs were filled. Total wages and benefits paid to employees during the year were \$106 million.

5.4 Purchases of Goods and Services

A total of \$15.7 million in goods and services were purchased by the shoreside seafood processing companies in the Unalaska/Akutan/Aleutians West region during 1993. On a quarterly basis, the expenditures consisted of \$3.2 million for the first quarter, \$4.9 million for the second quarter, \$2.6 million for the third quarter, and \$5.1 million for the fourth quarter.

By category, the expenditures consisted of \$11 million for consumables, \$3.5 million for services, \$35,000 for electricity, \$560,000 for water, \$140,000 for sewer, and \$500,000 for other purchases.

5.5 Taxes

During 1993, the shoreside processing companies paid \$17.5 million in state and local fish taxes. Of this amount, \$8 million was paid directly to local governments through local taxes or from the state through raw fish tax revenue sharing.

Table 5-1
Economic Impact of the Shoreside Processing Industry
on the Bering Sea/Aleutian Region during 1993

Employment	Peak Monthly Employment	5,162	
	Avg. Number of Employees/Month	3,154	
	Total Processing Payroll	81,823,464	
	Fringe benefits, workers comp., etc. (30% of payroll)	24,547,039	
	Airfare	2,227,331	
	SUB-TOTAL	108,597,834	108,597,834
Purchases	Consumables	10,983,996	
	Services	3,493,462	
	Electric	35,000	
	Water	559,822	
	Sewer	139,454	
	Phone	308,968	
	Trash Removal	193,244	
	Other	-	
	SUB-TOTAL	15,713,946	15,713,946
Taxes	State Raw Fish Tax	7,616,831	
	Local Raw Fish Tax	4,231,573	
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	5,678,192	
	SUB-TOTAL	17,526,596	17,526,596
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	19,454,764	
	Brown/Blue	12,125,352	
	Bairdi	49,622,601	
	Opilio	96,623,306	
	Dungeness	-	
	Misc. Shellfish	5,095,070	
	Pollock	71,839,052	
	Pacific Cod	13,452,244	
	Flounders	256,417	
	Rockfish	265,737	
Groundfish	Misc. Groundfish	14,246	
	Chinook	-	
	Sockeye	-	
	Coho	-	
	Pink	-	
	Chum	-	
	Spawn-on-Kelp	-	
	Food/Bait	677,729	
	Sac Roe	-	
	Sablefish	6,653,593	
Salmon	Hallibut	6,024,746	
	Shrimp	-	
	SUB-TOTAL	282,104,867	282,104,867
	TOTAL DIRECT EXPENDITURES		423,943,243
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly)			1,009,874,106

Table 5-2
Economic Impact of the Shoreside Processing Industry
on the Bering Sea/Aleutian Region during the First Quarter, 1993

Employment	Avg. Number of Employees/Month	4,735	
	Total Processing Payroll	26,455,164	
	Fringe benefits, workers comp., etc. (30% of payroll)	7,936,549	
	Airfare	923,341	
	SUB-TOTAL	35,315,054	35,315,054
Purchases	Consumables	1,932,979	
	Services	873,036	
	Electric	16,570	
	Water	197,218	
	Sewer	48,809	
	Phone	70,745	
	Trash Removal	55,516	
	Other	-	
	SUB-TOTAL	3,194,873	3,194,873
Taxes	State Raw Fish Tax	4,509,947	
	Local Raw Fish Tax	2,505,526	
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	1,670,351	
	SUB-TOTAL	8,685,824	8,685,824
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	-	
	Brown/Blue	6,062,676	
	Bairdi	49,622,601	
	Opilio	77,298,645	
	Dungeness	-	
	Misc. Shellfish	1,818,371	
Groundfish	Pollock	28,735,621	
	Pacific Cod	3,363,061	
	Flounders	64,104	
	Rockfish	66,434	
	Misc. Groundfish	3,562	
Salmon	Chinook	-	
	Sockeye	-	
	Coho	-	
	Pink	-	
	Chum	-	
Herring	Spawn-on-Kelp	-	
	Food/Bait	-	
	Sac Roe	-	
Other	Subfish	-	
	Hallibut	-	
	Shrimp	-	
	SUB-TOTAL	167,035,075	167,035,075
	TOTAL DIRECT EXPENDITURES		214,290,826
	AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED		
TOTAL ECONOMIC IMPACT (\$1.10 generated for every \$1 spent directly)			225,577,064

Table 5-3
Economic Impact of the Shoreside Processing Industry
on the Bering Sea/Aleutian Region during the Second Quarter, 1993

Employment	Avg. Number of Employees/Month	2,825	
	Total Processing Payroll	19,479,310	
	Fringe benefits, workers comp., etc. (30% of payroll)	5,843,793	
	Airfare	403,589	
	SUB-TOTAL	25,726,691	25,726,691
Purchases	Consumables	3,588,859	
	Services	1,012,546	
	Electric	2,300	
	Water	122,741	
	Sewer	30,680	
	Phone	59,510	
	Trash Removal	34,655	
	Other	-	
	SUB-TOTAL	4,851,291	4,851,291
Taxes	State Raw Fish Tax	1,036,852	
	Local Raw Fish Tax	576,029	
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	384,019	
	SUB-TOTAL	1,996,901	1,996,901
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	-	
	Brown/Blue	-	
Groundfish	Baird	-	
	Opilio	19,324,661	
	Dungeness	-	
	Misc. Shellfish	729,164	
	Pellock	-	
	Pacific Cod	8,071,347	
	Flounders	64,104	
Salmon	Rockfish	66,434	
	Misc. Groundfish	3,562	
	Chinook	-	
	Sockeye	-	
	Coho	-	
Herring	Pink	-	
	Chum	-	
	Spawn on Kelp	-	
	Food/Bait	-	
Other	Sac Roe	-	
	Sablefish	5,322,874	
	Hallibut	4,819,797	
	Shrimp	-	
	SUB-TOTAL	38,401,943	38,401,943
TOTAL DIRECT EXPENDITURES			70,976,826
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly)			177,465,066

Table 5-4
Economic Impact of the Shoreside Processing Industry
on the Bering Sea/Aleutian Region during the Third Quarter, 1993

Employment	Avg. Number of Employees/Month	2,860
	Total Processing Payroll	16,970,705
	Fringe benefits, workers comp., etc. (30% of payroll)	5,091,211
	Airfare	593,727
	SUB-TOTAL	22,655,643
22,655,643		
Purchases	Consumables	1,384,079
	Services	872,012
	Electric	3,250
	Water	94,830
	Sewer	23,707
	Phone	122,722
	Trash Removal	67,221
	Other	-
	SUB-TOTAL	2,567,821
2,567,821		
Taxes	State Raw Fish Tax	1,282,943
	Local Raw Fish Tax	712,746
	Other State Taxes (corporate income, ASMI, property, licenses, etc.)	-
475,164		
	SUB-TOTAL	2,470,853
2,470,853		
Fish (Ex-Vessel Value of Purchase)		
Crab	Red King	-
	Brown/Blue	-
	Bairdi	-
	Opilio	-
	Dungeness	-
	Misc. Shellfish	729,164
Groundfish	Pollock	43,103,431
	Pacific Cod	336,306
	Flounders	64,104
	Rockfish	66,434
	Misc. Groundfish	3,562
Salmon	Chinook	-
	Sockeye	-
	Coho	-
	Pink	-
	Chum	-
Herring	Spawn-on-Kelp	-
	Food/Bait	677,739
	Sac Roe	-
Other	Sablefish	1,330,719
	Halibut	1,204,949
	Shrimp	-
	SUB-TOTAL	47,516,408
47,516,408		

Table 5-5
Economic Impact of the Shoreside Processing Industry
on the Bering Sea/Aleutian Region during the Fourth Quarter, 1993

Employment	Avg. Number of Employees/Month	2,197
	Total Processing Payroll	18,918,285
	Fringe benefits, workers comp., etc. (30% of payroll)	5,675,486
	Airfare	306,675
	SUB-TOTAL	24,900,446
24,900,446		
Purchases	Consumables	4,078,079
	Services	735,867
	Electric	12,880
	Water	145,034
	Sewer	36,258
	Phone	55,991
	Trash Removal	35,853
	Other	-
	SUB-TOTAL	5,099,961
5,099,961		
Taxes	State Raw Fish Tax	787,089
	Local Raw Fish Tax	437,272
	Other State Taxes (corporate income, ASMI, property, licenses, etc.)	
291,514		
1,515,875	SUB-TOTAL	1,515,875
Fish (Ex-Vessel Value of Purchase)		
Crab	Red King	19,454,764
	Brown/Blue	6,062,676
	Bairdi	-
	Opilio	-
	Dungeness	-
	Misc. Shellfish	1,818,371
Groundfish	Pollock	-
	Pacific Cod	1,681,531
	Flounders	64,104
	Rockfish	66,434
	Misc. Groundfish	3,562
Salmon	Chinook	-
	Sockeye	-
	Coho	-
	Pink	-
	Chum	-
Herring	Spawn-on-Kelp	-
	Food/Bait	-
	Sac Roe	-
Other	Sablefish	-
	Halibut	-
	Shrimp	-
	SUB-TOTAL	29,151,441
29,151,441		

Table 5-6
1993 Purchases of Fish and Shellfish in Bering Sea/Aleutian Region
by the Shoreside Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	4,966,751	4,966,751
Brown/Blue	2,603,124	-	-	2,603,124	5,206,248
Bairdi	27,830,960	-	-	-	27,830,960
Opilio	102,382,311	25,595,578	-	-	127,977,889
Dungeness	-	-	-	-	-
Misc. Shellfish	580,949	232,960	232,960	580,949	1,627,818
Pollock	410,508,866	-	615,763,299	-	1,026,272,164
Pacific Cod	18,683,673	44,840,814	1,868,367	9,341,836	74,734,691
Flounders	427,362	427,362	427,362	427,362	1,709,447
Rockfish	53,147	53,147	53,147	53,147	212,590
Misc. Groundfish	35,615	35,615	35,615	35,615	142,461
Chinook	-	-	-	-	-
Sockeye	-	-	-	-	-
Coho	-	-	-	-	-
Pink	-	-	-	-	-
Chum	-	-	-	-	-
Spawn-on-Kelp	-	-	-	-	-
Food/Bait	-	-	4,518,258	-	4,518,258
Sac Roe	-	-	-	-	-
Sablefish	-	2,129,150	532,287	-	2,661,437
Halibut	-	3,783,200	945,800	-	4,729,000
Shrimp	-	-	-	-	-
Total	563,106,007 44%	77,097,826 6%	624,377,095 49%	18,008,783 1%	1,282,589,713 100%

Impacts in the Kona/Cook Inlet Region

6.1 Introduction

Tables 6-1 through 6-4 display the annual and quarterly economic impact of the shoreside seafood processing industry in the Kona/Cook Inlet/Anchorage Region during 1993. The total impact was \$34.4 million, of which \$137.5 million were direct expenditures. Of this amount, \$42 million was spent on purchases of fish and shellfish, \$38.5 million was spent on labor, \$30.3 million was spent on purchases of goods and services, and \$3.1 million was spent on unrelated items. Figure 6-1 shows the direct expenditures while Figure 6-2 shows the direct expenditures from each category as a percent of the total.

On an annual basis, shoreside seafood processing companies spent \$1.87 for every pound of fish and shellfish processed during 1993.

6.2 Purchases of Fish and Shellfish

Table 6-4 shows the poundage of fish and shellfish purchased by quarter in the Kona/Cook Inlet region during 1993. For ex-vessel expenditures by the shoreside processing industry by species and quarter during 1993, see the "Fish Purchases" categories of Tables 6-1 through 6-3 for detailed information. Figures 6-3 and 6-4 display the percentage distribution of fish and shellfish purchased by the shoreside processors during 1993 by major species group in pounds purchased and value respectively.

During 1993, 74 million pounds of fish and shellfish were purchased in the region. The dominant species consisted of sole/eye salmon (29 million pounds), followed by salmon (11.8 million pounds), halibut (11.5 million pounds), sea urchin

Figure 6-1
Distribution of Direct Expenditures by Shoreside Processing Industry in Kona/Cook Inlet/Anchorage Region during 1993

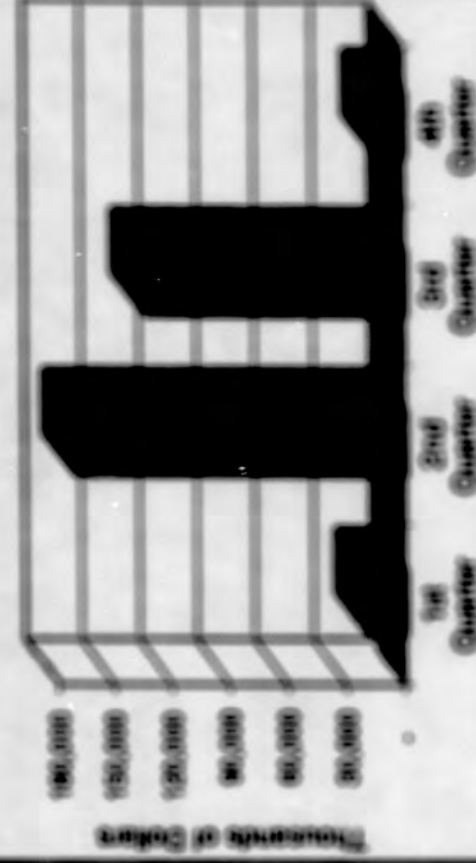


Figure 6-2
Percent Distribution of Expenditures by Shoreside Processing Industry in Kona/Cook Inlet/Anchorage Region during 1993



herring (7 million pounds), and Pacific cod (6.6 million pounds). On a quarterly basis, the percent (8.7 million pounds) was processed in the first quarter, 8.2% (8.6 million pounds) was processed in the second quarter, 31% (32 million pounds) were processed in the third quarter, and less than

Figure 6.3
Distribution of Fish & Shellfish by Major
Species Category Purchased by the Shoreside
Processing Industry in Kams/Cook Inlet/
Anchorage Region during 1993
(in percent of total volume)

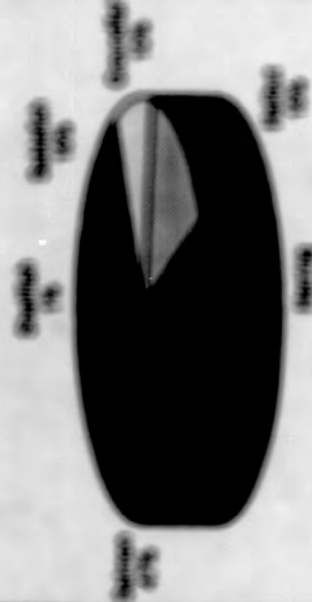
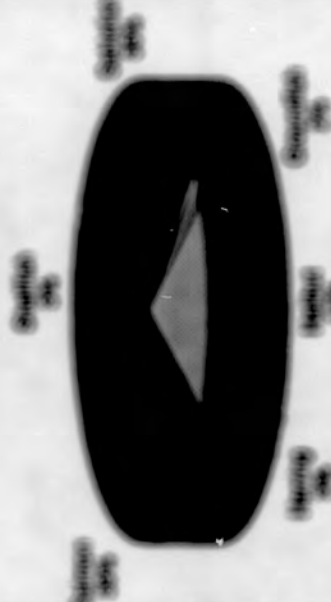


Figure 6.4
Distribution of Fish & Shellfish by Major
Species Category Purchased by the Shoreside
Processing Industry in Kams/Cook Inlet/
Anchorage Region during 1993
(in percent of total value)



one percent (61,988 pounds) was processed in the fourth quarter.

In terms of ex-vessel values, ex-vessel salmon generated the greatest revenue (\$2.81 million), followed by halibut (\$2.79 million) and haddock (\$1.8 million).

6.3 Employment

The average number of individuals employed on a monthly basis during 1993 was 1,071. Employment varied significantly through the year; the lowest quarters were the first and fourth quarters when 509 and 516 individuals respectively were employed, while the second and third quarters produced direct employment opportunities for 1,269 and 1,316 individuals respectively. Total wages

and benefits paid to employees during the year were \$36.6 million.

6.4 Purchases of Goods and Services

A total of \$33 million in goods and services were purchased by the shoreside seafood processing companies in the Kams/Cook Inlet region during 1993. On a quarterly basis, the expenditures consisted of \$1.3 million for the first quarter, \$2.6 million for the second quarter, \$8.2 million for the third quarter, and \$1.2 million for the fourth quarter.

By category, the expenditures consisted of \$2.6 million for consumption, \$2.6 million for services, \$1.3 million for electricity, \$260,000 for water, and \$230,000 for other purchases.

6.5 Taxes

Purchases of fish and shellfish in the Kams/Cook Inlet region by the shoreside processing industry in 1993 generated \$7.3 million in state and local taxes. Of this amount, \$2.2 million was paid directly to local governments through local taxes or front-the-street through the fish tax account sharing.

Table 6:
Components of the Shortwide Forwarding Indicator
on the Shortwide Forwarding Sub-Region Matrix

[illegible]

Table 6.2
Economic Imports of the Shereide Pwanning Industry
on the Karam/Cash Shit/Aw/Naranga Region during the First Quarter, 1993

Employment	Avg Number of Employees/Week Total Working Period Temp. month, under comp. on (100% of period)	1993 1/26/93 08/17/93 4/22/93 3/27/94 3/27/94	Percent of Total
Business	Commerce	501,000	17%
	Service	401,078	
	Finance	191,050	
	Transport	19,000	
	Health	10,000	
	Education	10,000	
	Other	1,000	
	Total Business	1,127,000	
	Other	1,000,000	
	Total	2,127,000	
Finance	Bank	90,000	3%
	Insurance	40,000	
	Other	1,000	
	Total Finance	131,000	
	Other	100,000	
	Total	231,000	
Other	Other	1,000,000	10%
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
Other	Other	1,000,000	10%
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	
	Other	1,000,000	

Table 6-3
Economic Impact of the Shorouba Processing Industry
on the Kani/Coastal/Anthurage Region during the Second Quarter, 1993

Employment	Avg Number of Employees/Head		Percent of Total
	Total Shorouba	Total	
Employment	Employment, number emp. in (10% of payroll)		
	1018 (1018)	5,210 (501)	19
Production	Consumables	\$ 102,787	
	Barium	975,278	
	Barium	540,042	
	Water	56,000	
	Barium	1,480	
	Barium	51,796	
	Total Barium	1,380	
	Barium	67,000	
	Barium	10,070,722	19
	Barium	10,070,722	
	Barium	10,070,722	
Produce	Barium	1,020,722	
	Barium	645,000	
	Barium	567,071	
	Barium	10,070,000	19
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
Other (By Head Value of Purchase)	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
Other	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	
	Barium	10,070,000	

Table 6-4
Economic Impact of the Shorewide Processing Industry
on the Kani/Cook Inlet/Anchorage Region during the Third Quarter, 1993

Employment	Avg. Number of Employees/Week		Percent of Total
	Total Processing Facility	Range benefits, outdoor camp, etc. (75% of payroll)	
	6,437,628	58,195	
	613,737 WL	26,175,315	4%
Purchases	Construction	2,365,279	
	Services	927,216	
	Electric	628,896	
	Water	122,266	
	Gas	-	
	Phone	58,329	
	Total Economy	3,016	
	600	27,000	
	613,737 WL	4,101,281	8%
Taxes	State Sales Tax	596,055	
	Local Sales Tax	201,141	
	(See State Taxes (corporate income, 4550L, property, licenses, etc.)	233,761	
	613,737 WL	1,087,957	2%
Fish (Ex-Vessel Value of Purchases) (Cdn)	For King	-	
	Smelt/Chin	-	
	Salmon	-	
	Crab	-	
	Langoustine	-	
	White Sea/Lake	-	
	Pollock	-	
	Pacific Cod	-	
	Penaeus	6,362	
	Salmon	-	
Subsides	State Construction	200,792	
	General	16,829,186	
	Subsidy	755,828	
	Crab	261,096	
	Salmon	302,055	
	Crab	-	
	Spawning King	-	
	Smelt/Chin	-	
	Salmon	-	
	Salmon	2,365,279	
Totals	Salmon	2,795,352	
	Salmon	-	
	Salmon	25,076,000	41%
	613,737 WL	25,076,000	
	613,737 WL	25,076,000	
	613,737 WL	25,076,000	
	613,737 WL	25,076,000	
	613,737 WL	25,076,000	
	613,737 WL	25,076,000	
	613,737 WL	25,076,000	

NOTE: 1993 Q3 EMPLOYMENT AND PURCHASES DATA ARE BASED ON 1993 Q3 DATA.

TOTAL 1993 Q3 EMPLOYMENT AND PURCHASES DATA ARE BASED ON 1993 Q3 DATA.

25,076,000

100%

TOTAL 1993 Q3 EMPLOYMENT AND PURCHASES DATA ARE BASED ON 1993 Q3 DATA.

Table 6-5
Economic Impact of the Shorewide Processing Industry
on the Kerala/Cook Inlet/Anchorage Region during the Fourth Quarter, 1993

Employment	Avg. Number of Employees/Month	SEB	Percent of Total
	Total Processing Payroll	3,170,813	77%
	Fringe benefits, workers comp., etc. (30% of payroll)	947,794	
	Asides	6,194,794	
	SEIB TOTAL	4,114,794	
Purchases	Commodities	597,087	27%
	Services	228,292	
	Electric	201,579	
	Water	22,294	
	Gas	1,120	
	Phone	22,312	
	Total Reported	862	
	Other	29,115	
	SEIB TOTAL	1,274,671	
Taxes	State Sales Tax The Local Rate Fish Tax	240	1%
	(Other State Taxes (corporate income, 43001 property, license, etc.)	471	
	SEIB TOTAL	471	
Fish (Ex-Vessel Value of Purchases)	Cash		
	For King	.	9%
	Barney/Sea	.	
	Local	.	
	Opilio	.	
	Thompson	.	
	Mac. Shellfish	.	
	Pollock	.	
	Pacific Cod	.	
	Penaeus	9,367	
	Kuskokwim	.	
	Other Groundfish	.	
	Chum	.	
	Boatops	.	1%
	Cabo	.	
	Fish	.	
	Chum	.	
	Spencer/Kip	.	
	Pacific/Sea	.	
	Sea Fish	.	
	Seafood	.	
	Salmon	.	
	Shrimp	.	
	SEIB TOTAL	9,367	
	Hiring		1%
	Other		1%
TOTAL SEIBER'S ECONOMIC IMPACTS			
ATTENTION: SEIBER'S ECONOMIC IMPACT FROM POLLOCK PURCHASES		8,208,008	187%

TOTAL SEIBER'S ECONOMIC IMPACT FROM POLLOCK PURCHASES

Table 6-6
1993 Purchases of Fish and Shellfish in the Kenai/Cook Inlet/Anchorage Region
by the Shorewide Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	-	-
Brown/Blue	-	-	-	-	-
Baird	1,080,120	-	-	-	1,080,120
Oyotse	-	-	-	-	-
Dungeness	-	-	-	-	-
Misc. Shellfish	-	-	-	-	-
Perch	-	-	-	-	-
Pacific Cod	3,293,783	3,293,783	-	-	6,587,565
Flounders	60,412	60,412	60,412	60,412	241,646
Rockfish	296,541	296,541	-	-	593,081
Misc. Groundfish	-	-	-	-	-
Chinook	-	272,086	272,086	-	544,171
Sockeye	-	14,491,789	14,491,789	-	28,983,578
Coho	-	562,130	1,311,637	-	1,873,767
Pink	-	532,979	2,131,918	-	2,664,897
Chum	-	148,569	594,274	-	742,843
Spawns on Kelp	-	-	-	-	-
Food/Bait	-	-	-	-	-
Sac Row	-	7,140,700	-	-	7,140,700
Salmon	-	10,544,931	1,176,099	-	11,720,930
Halibut	-	9,190,566	2,297,642	-	11,488,208
Shrimp	-	-	-	-	-
Total	4,730,815	46,574,443	22,335,856	60,412	73,701,567
	6%	63%	30%	0%	100%

Impacts in the Kodiak Region

7.1 Introduction

Tables 7-1 through 7-4 display the annual and quarterly economic impact of the shoreside seafood processing industry Kodiak during 1993. The total impact was \$523 million, of which \$209 million were direct expenditures. Of this amount, \$125 million was spent on purchases of fish and shellfish, \$58 million was spent on labor, \$16.6 million was spent on purchases of goods and services, and \$9.4 million was spent on tax related items.

Figure 7-1 shows the direct expenditures by quarter, while Figure 7-2 shows the direct expenditures from each category as a percent of the total.

On an annual basis, shoreside seafood processing companies spent \$0.48 for every pound of fish and shellfish processed during 1993.

7.2 Purchases of Fish and Shellfish

Table 7-6 shows the pounds of fish and shellfish purchased by quarter in the Kodiak region during 1993; for ex-vessel expenditures by the shoreside processing industry by species and quarter during 1993, see the "Fish Purchases" categories of Tables 7-1 through 7-5 for detailed information. Figures 7-3 and 7-4 display the percentage distribution of fish and shellfish purchased by the shoreside processors during 1993 by major species group in pounds purchased and value respectively.

During 1993, 434 million pounds of fish and shellfish were purchased in the region. The dominant species consisted of pollock (183 million pounds), followed by pink salmon (106 million pounds), Pacific cod (54 million pounds), sockeye

Figure 7-1
Distribution of Direct Expenditures by Shoreside Processing Industry in Kodiak during 1993

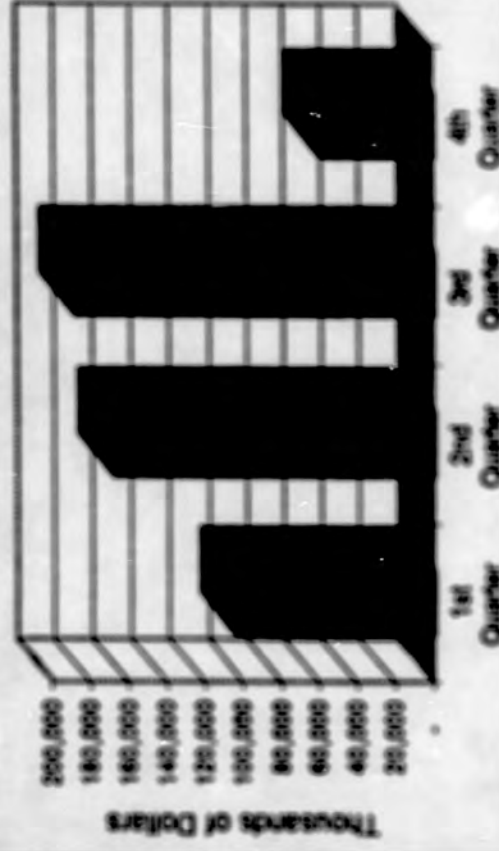


Figure 7-2
Percent Distribution of Expenditures by Shoreside Processing Industry in Kodiak during 1993



salmon (22 million pounds), flounders (21 million pounds), and halibut and sea roe herring (10 million pounds respectively). On a quarterly basis, 20% (88 million pounds) were processed in the first quarter, 31% (133 million pounds) were processed

Figure 7-3
Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Kodiak during 1993
(in percent of total pounds)

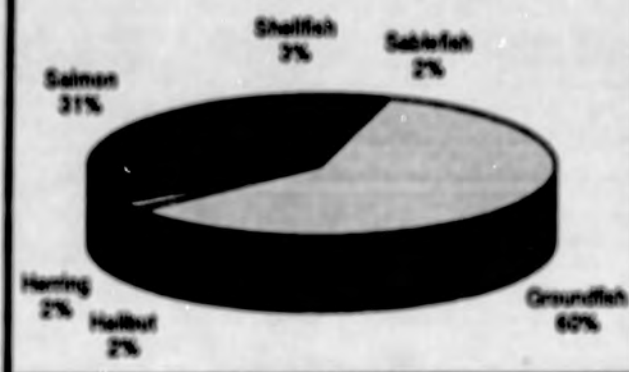
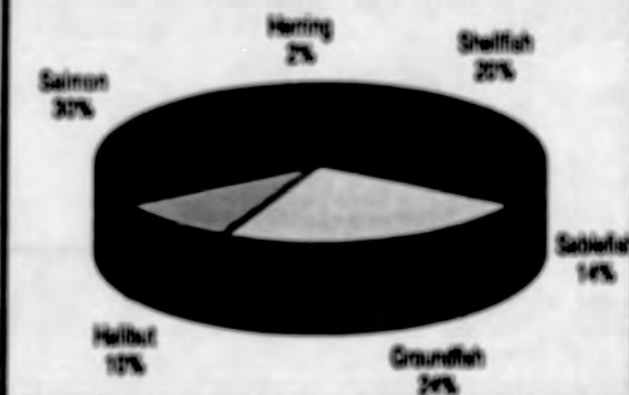


Figure 7-4
Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Kodiak during 1993
(in percent of total value)



in the second quarter, 37% (159 million pounds) were processed in the third quarter, and 13% (55 million pounds) were processed in the fourth quarter.

In terms of ex-vessel values, sockeye salmon generated the greatest overall revenue (\$19.8 million), followed by sablefish (\$17 million), pink salmon (\$16.8 million), pollock (\$15.6 million), bairdi Tanner crab (\$13.8 million), halibut (\$12 million), and Pacific cod (\$9.7 million).

7.3 Employment

On a monthly basis during 1993, approximately 1,720 individuals were employed with the shoreside processing industry in the Kodiak region. Direct employment fluctuates slightly through the year from a quarterly low of 1,290 jobs (the fourth

quarter) to a high of 2,431 jobs (during the second quarter). Total wages and benefits paid to employees during the year were \$58 million.

Seafood processing dominates employment opportunity in Kodiak. During 1993, thirty-two percent of total employment opportunity consisted of seafood processing jobs.

7.4 Purchases of Goods and Services

A total of \$16.6 million in goods and services were purchased by the shoreside seafood processing companies in Kodiak during 1993. On a quarterly basis, the expenditures consisted of \$3.3 million for the first quarter, \$4.2 million for the second quarter, \$6.7 million for the third quarter, and \$2.3 million for the fourth quarter.

By category, the expenditures consisted of \$7.4 million for consumables, \$2.4 million for services, \$4.4 million for electricity, \$654,000 for water, \$57,000 for sewer services, and \$1.7 million for other purchases.

7.5 Taxes

Purchases of fish and shellfish in the Kodiak region by the shoreside processing industry in 1993 generated \$9.4 million in state and local taxes. Of this amount, \$3.6 million was paid directly to local governments through local taxes or from the state through raw fish tax revenue sharing.

Table 7-1
Economic Impact of the Shoreside Processing Industry
on the Aleutians/Bering Sea Region during 1993

Employment	Peak Monthly Employment	3,132		Percent of Total
	Avg. Number of Employees/Month	1,720		
	Total Processing Payroll	44,396,360		
	Fringe benefits, workers comp., etc. (30% of payroll)	13,318,908		
	Aidion	484,919		
	SUB-TOTAL	58,200,186	58,200,186	29%
Purchases	Consumables	7,350,283		8%
	Services	2,440,325		
	Electric	4,376,621		
	Water	633,158		
	Sewer	56,925		
	Phone	175,044		
	Trash Removal	237,068		
	Other	1,282,570		
	SUB-TOTAL	16,572,394	16,572,394	
Taxes	State Raw Fish Tax	3,379,534		4%
	Local Raw Fish Tax	1,877,519		
	Other State Taxes (corporate income, ASME, property, license, etc.)	4,108,822		
	SUB-TOTAL	9,365,876	9,365,876	
Fish (Ex-Vessel Value of Purchase)				
Crab	Red King	4,754,525		60%
	Brown/Blue	-		
	Sable	13,750,155		
	Oylio	1,904,462		
	Dungeness	1,119,644		
	Min. Shellfish	3,216,760		
	Pollock	13,540,934		
	Pacific Cod	9,702,295		
	Flounder	3,193,530		
	Rockfish	1,461,518		
Groundfish	Min. Groundfish	271		
	Chinook	385,326		
	Sockeye	19,436,611		
	Coho	941,014		
	Pink	16,812,815		
	Chum	930,120		
	Spaw on Eelp	-		
	Foodfish	2,519		
	Sac Row	3,067,961		
	Sablefish	17,043,487		
Salmon	Salmon	11,977,216		
	Shrimp	31,979		
	SUB-TOTAL	121,467,836	121,467,836	
TOTAL DIRECT EXPENDITURES			209,336,302	100%
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED				

TOTAL ECONOMIC IMPACT (\$1.00 assumed for every \$1 spent directly) \$23,267,000

Table 7.2
Economic Impact of the Shoreline Processing Industry
on the Kodiak during the First Quarter, 1993

Employment	Avg. Number of Employees/Month	Percent of Total
Total Processing Payroll	8,304,895	
Foreign benefits, workers comp., etc. (35% of payroll)	2,911,609	
Adrian	423	
SEIB TOTAL	10,796,793	26%
Purchases		
Consumables	1,243,369	
Services	377,312	
Electric	1,094,516	
Water	141,473	
Sewer	13,975	
Phone	36,593	
Total Returned	70,872	
Other	313,839	
SEIB TOTAL	3,308,441	8%
Taxes		
State & Loc. Fish Tax	702,872	
Local & State Fish Tax	390,684	
Other State Taxes (corporation income, ASML, property, license, etc.)	290,522	
SEIB TOTAL	1,384,079	3%
Fish (Ex-Vessel Value of Purchases)		
Cod		
Red King	-	
Brown/Blaue	13,790,135	
Salmon	1,523,569	
Opilio	-	
Emergence	804,130	
Misc. Shellfish	3,890,233	
Pollock	4,871,347	
Pacific Cod	777,632	
Penaeus	413,122	
Rockfish	271	
Misc. Crustacea	-	
Chinook	-	
Sockeye	-	
Coho	-	
Pink	-	
Chum	-	
Silver-on-Kelp	-	
Penaeus	-	
Sea Kees	-	
Salmonids	-	
Halibut	-	
Shrimp	20,373	
SEIB TOTAL	26,353,295	63%
Other		
Shrimp	-	
SEIB TOTAL	26,353,295	63%
TOTAL DIRECT EXPENDITURES	41,441,200	100%
AVERAGE DIRECT EXPENDITURES PER POUND PRODUCE SHIPPED		
TOTAL ECONOMIC IMPACT (\$1.00 generated for every \$1 spent directed) 1175.726,000		

Table 7.3
Economic Impact of the Shoreline Processing Industry
on the Kodiak during the Second Quarter, 1993

Employment	Avg. Number of Employees/Month	Percent of Total
	1,798	
	6,868,137	
	2,054,432	
	261,352	
	9,163,951	100
Purchases		
	Consumables	1,820,472
	Services	682,710
	Electric	1,087,505
	Water	148,023
	Steam	13,875
	Phone	47,731
	Total Purchased	48,793
	Other	216,115
	513,757 AL	4,201,200
		68
Taxes		
	State Rate Fish Tax	1,375,401
	Local Rate Fish Tax	764,162
		299,441
	Other State Taxes (corporate income, AVAL, property, license, etc.)	2,641,985
	513,757 AL	2,641,985
		68
Fish (Ex-Vessel Value of Purchases)		
	Red King	-
	BrownShoe	-
	Salad	-
	Opilio	381,892
	Crangon	555,422
	Wm. Shellfish	816,190
	Pollock	2,891,225
	Pacific Cod	2,881,318
	Pommes	777,452
	Rockfish	423,512
	Wm. Crustacea	-
	Chum	192,662
	Sockeye	4,714,316
	Coho	281,316
	Pink	2,362,362
	Chum	272,144
	Spencer King	-
	Redfish	2,319
	Sea Roe	2,881,861
	Subsides	113,426,798
	Salmon	4,362,775
	Shrimp	-
	513,757 AL	51,364,137
		708
		66,863,272
		100%

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Table 7-4
Economic Impact of the Shoreline Processing Industry
on the Kodiak during the Third Quarter, 1993

Employment	Avg. Number of Employees/Month	Percent of Total
Total Processing Payroll	2,476	
Fringe benefits, workers comp., etc. (20% of payroll)	271,816 \$79	
Airfare	6,271,082	
SLB TOTAL	175,772	
SLB TOTAL	28,067,767	26%
Purchases		
Construction	5,229,379	
Services	1,082,815	
Electric	1,476,816	
Water	224,365	
Sewer	13,875	
Phone	63,879	
Total Personal	110,225	
Other	475,722	
SLB TOTAL	6,794,910	9%
Taxes		
State Real Prop Tax	1,009,779	
Local Real Prop Tax	581,286	
Other State Taxes (corporate income, estate, property, license, etc.)	275,290	
SLB TOTAL	1,866,355	3%
Final (Gross) Value of Purchases (GDP)		
Real Estate	-	
Manufacture	-	
Trade	-	
Services	-	
Government	-	
Other	-	
SLB TOTAL	107,065	
Balance	6,718,306	
Other	658,710	
Food	115,420,252	
Other	558,372	
SLB TOTAL	116,536,330	100%
SLB TOTAL	37,209,370	32%
SLB TOTAL	176,725,665	100%

TOTAL SHORELINE PROCESSING IMPACTS
 WITHIN THE SHORELINE PROCESSING INDUSTRY (MILLION DOLLARS)

TOTAL ECONOMIC IMPACT OF THE SHORELINE PROCESSING INDUSTRY (MILLION DOLLARS)

Table 7-5
Economic Impact of the Shoreline Processing Industry
on the Kodiak during the Fourth Quarter, 1993

Employment	Avg. Number of Employees/Month		Percent of Total
	Total Processing Facility	Processing Facility, western com., etc. (30% of payroll)	
	47,666	14,299	
	\$128,707,916	\$36,872,273	28%
Purchases	Construction	\$46,797	
	Services	\$264,380	
	Electric	\$13,797	
	Water	\$25,040	
	Gas	\$5,320	
	Phone	\$6,825	
	Total Personal	\$77,210	
	Other	\$74,905	
	\$128,707,916	\$214,294	17%
Taxes	State Sales Tax Total	\$201,397	
	Local Sales Tax Total	\$61,867	
	(State Sales Taxes (long term income, 4500), property, income, etc.)	\$17,020	
	\$128,707,916	\$260,284	2%
Fish (Ex-Vessel Value of Purchases)			
	Cod	\$4,794,020	
Construction	Boat Building	-	
	Boat	-	
	Spills	-	
	Shipyards	-	
	Marine Services	\$68,190	
	Public	\$3,891,250	
	Public (Gov)	\$85,110	
	Marine	\$77,822	
	Marine	\$60,761	
	Marine Construction	-	
Sales	Construction	-	
	Boats	-	
	Boat	-	
	Boat	-	
	Boat	-	
	Boat	-	
	Boat	-	
	Boat	-	
	Boat	-	
	Boat	-	
Shipping	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
	Boat Building	-	
Total			
	\$128,707,916	\$10,792,876	8%
TOTAL SHIPMENT ECONOMIC IMPACTS		\$10,792,876	8%
AVERAGE SHIPMENT ECONOMIC IMPACT PER MONTH (94,000,000)		\$1,079,287	0.8%

NOTE: ALL FIGURES ARE IN DOLLARS AND CENTS, UNLESS OTHERWISE SPECIFIED.

Table 7-6
1993 Purchases of Fish and Shellfish in the Kodiak
by the Shorewide Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	1,208,712	1,208,712
Brown/Blue	-	-	-	-	-
Sard	6,920,058	-	-	-	6,920,058
Opilio	2,017,973	-	-	-	2,522,466
Dungeness	-	504,493	-	-	1,174,863
Misc. Shellfish	412,194	587,432	587,432	-	1,648,775
Pollock	45,767,452	412,194	412,194	412,194	183,069,808
Pacific Cod	26,970,819	45,767,452	45,767,452	45,767,452	53,901,638
Flounder	5,184,216	21,560,633	2,691,062	2,691,062	20,736,964
Rockfish	222,408	5,184,216	5,184,216	5,184,216	1,169,054
Misc. Groundfish	2,712	362,810	603,322	80,624	2,712
Chinook	-	231,519	-	-	503,037
Sableye	-	11,222,062	231,519	-	22,444,324
Coho	-	631,513	11,222,062	-	2,105,176
Pink	-	21,242,044	1,473,623	-	106,410,222
Chum	-	1,438,273	831,328,178	-	3,523,182
Spawns on Kelp	-	-	2,113,909	-	-
Flatfish	-	-	-	-	100,754
Sea Roe	-	100,754	-	-	9,878,393
Salmon	-	9,878,393	-	-	6,817,393
Shellfish	-	5,433,916	1,363,479	-	101,899,000
Shrimp	-	8,079,200	2,019,800	-	9,300
Total	87,547,221	132,667,967	158,622,067	515,348,280	434,223,534
	20%	31%	37%	13%	100%

Impacts in Prince William Sound

8.1 Introduction

Tables 8-1 through 8-4 display the annual and quarterly economic impact of the shoreside seafood processing industry on Prince William Sound during 1993. The total impact was \$140 million, of which \$56 million were direct expenditures. Of this amount, \$33.5 million was spent on purchases of fish and shellfish, \$14.3 million was spent on labor, \$3.8 million was spent on purchases of goods and services, and \$4.6 million was spent on tax related items. Figure 8-1 shows the direct expenditures by quarter, while Figure 8-2 shows the direct expenditures from each category as a percent of the total.

On an annual basis, shoreside seafood processing companies spent \$1.13 for every pound of fish and shellfish processed during 1993.

8.2 Purchases of Fish and Shellfish

Table 8-6 shows the poundage of fish and shellfish purchased by quarter in Prince William Sound during 1993; for ex-vessel expenditures by the shoreside processing industry by species and quarter during 1993, see the "Fish Purchases" categories of Tables 8-1 through 8-5 for detailed information. Figures 8-3 and 8-4 display the percentage distribution of fish and shellfish purchased by the shoreside processors during 1993 by major species group in pounds purchased and value respectively.

During 1993, 49.5 million pounds of fish and shellfish were purchased in the region. The dominant species consisted of pink salmon (16.5 million pounds), followed by sockeye salmon

Figure 8-1
Distribution of Direct Expenditures by Shoreside Processing Industry
in Prince William Sound during 1993

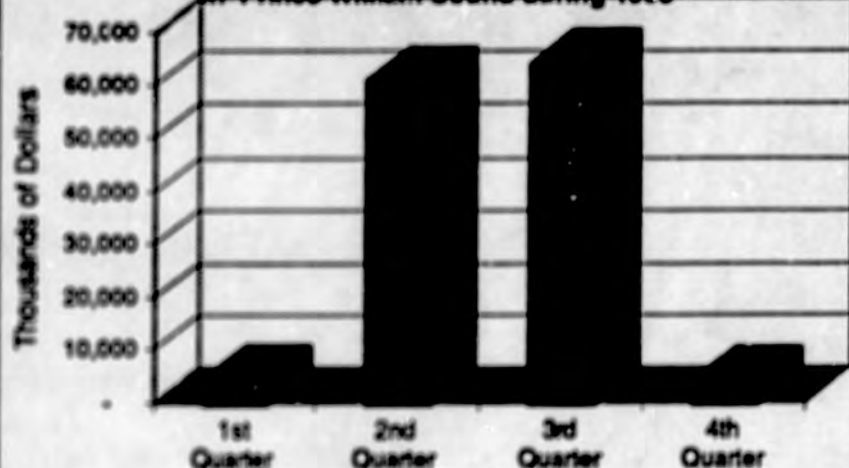
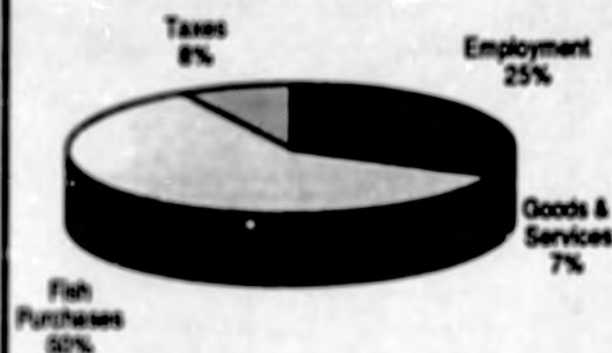


Figure 8-2
Percent Distribution of Expenditures by
Shoreside Processing Industry in Prince
William Sound
during 1993



(10.6 million pounds). The harvest were extremely seasonal: there was very little harvest during the first and the fourth quarters, while the second quarter accounted for 44% (22 million pounds) and the

8.4

Purchases of Goods and Services

A total of \$3.8 million in goods and services

were purchased by the shoreline industrial processing companies in Prince William Sound during

1993. On a quarterly basis, the expenditures consisted of \$652,000 for the first quarter, \$1 million

for the second quarter, \$1.6 million for the third

quarter, and \$543,000 for the fourth quarter.

By category, the expenditures consisted of

\$31 million for consumables, \$767,000 for services,

\$1.4 million for electricity, \$209,000 for water, \$112,000 for sewer services, and \$291,000

for other purchases.

8.5

Purchases of Goods and Services

Purchases of fish and shellfish in Prince William Sound by the shoreline processing industry

in 1993 generated \$4.6 million in state and local

taxes. Of this amount, \$955,000 was paid directly

to local governments through local taxes or from

the state through new fish tax revenue sharing.

Figure 8-3

Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreline Processing Industry in Prince William Sound during 1993

(in percent of total pounds)

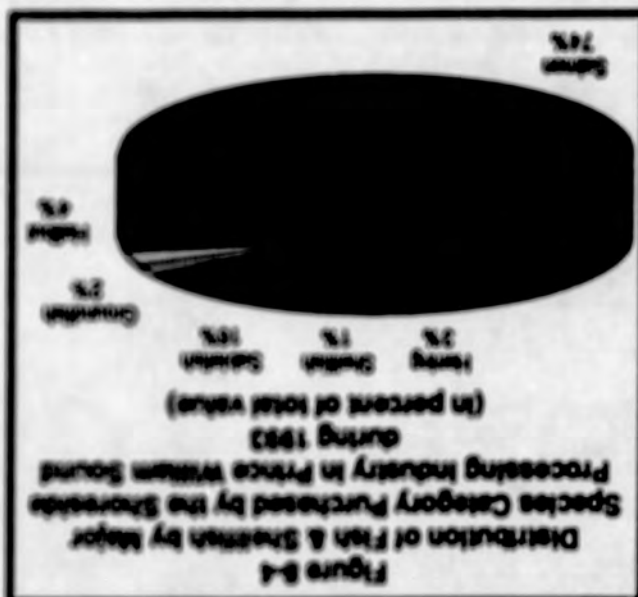
Salmon 78%
Herring 6%
Shrimp 1%
Crustacean 4%
Mollusks 2%

Figure 8-4

Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreline Processing Industry in Prince William Sound during 1993

(in percent of total value)

Salmon 74%
Herring 2%
Shrimp 1%
Crustacean 1%
Mollusks 4%



third quarter accounted for 52% (26 million pounds).
In terms of ex-vessel values, sockeye salmon generated the greatest overall revenue (\$13 million, followed by sablefish (\$5.3 million), and chum salmon (\$5 million).

8.3 Employment

An average of 484 individuals were employed on a monthly basis during 1993. As with purchases

of fish and shellfish, employment fluctuated sharply through the year; June employment was

available during the first and fourth quarters, while the second quarter provided 398 direct jobs and

the third quarter provided 964 jobs. Total wages

and benefits paid to employees during the year were

Table 6
Comments beyond of the Silverado Processing Facility on the Classification During Two Region Meeting 2002

[illegible]

Table 6
Components, layout of the three-walks Free-moving Bedding
on the Pivotal Millstone Covered Moving the First (Case 1) 2007

Category	Sub-category	Value	Percentage	Total
Demographics	Age: Number of Employees/Hours	55		
	Gender: Male/Female	56/44		
	Ethnicity: White/Black/Hispanic/Asian/Other	60/20/15/10/5		
	Education: High School/Some College/Bachelor's/Master's/PhD	60/20/15/10/5		
	Income: Less than \$10,000/\$10,000-\$20,000/\$20,000-\$30,000/\$30,000-\$40,000/\$40,000-\$50,000/\$50,000-\$60,000/\$60,000-\$70,000/\$70,000-\$80,000/\$80,000-\$90,000/\$90,000-\$100,000	10/20/25/20/15/5/2/1/1/1		
	Marital Status: Single/Married/Divorced/Widowed	40/20/15/10		
	Religion: Christian/Jewish/Muslim/Hindu/Sikh/Buddhist/Other	40/20/15/10/5/5		
	Disability: Yes/No	10/40		
	Language: English/Spanish/Other	40/15/5		
	Other	5		
Performance	Quality: Defects/Errors	10/40		
	Quantity: Units/Hours	40/20		
	Efficiency: Time/Cost	40/20		
	Customer Satisfaction: Score	40/20		
	Retention: Churn Rate	10/40		
	Compliance: Audits/Findings	10/40		
	Innovation: New Products/Services	10/40		
	Teamwork: Collaboration	10/40		
	Communication: Meetings/Reports	10/40		
	Other	5		
Financial	Revenue: Total/Net	100/80		
	Costs: Fixed/Variable	40/60		
	Profit: Gross/Net	40/20		
	Investment: R&D/Marketing	10/40		
	Debt: Loans/Bonds	10/40		
	Equity: Shares/Options	10/40		
	Assets: Cash/Inventory	10/40		
	Liabilities: Accounts Payable	10/40		
	Other	5		
	Operational	Production: Units/Hours	100/80	
Quality: Defects/Errors		10/40		
Efficiency: Time/Cost		40/20		
Customer Satisfaction: Score		40/20		
Retention: Churn Rate		10/40		
Compliance: Audits/Findings		10/40		
Innovation: New Products/Services		10/40		
Teamwork: Collaboration		10/40		
Communication: Meetings/Reports		10/40		
Other		5		

Table 6.3
Economic Impact of the Short-Run Price-cost Industry on the Protein Millers Sector during the Second Quarter, 1993

[illegible]

Table B-4
Economic Impact of the Shovelware Processing Industry on the Private William Seward during the Third Quarter, 1993

Employment	Avg. Number of Employees/Week	Pay	Percent of Total
	Total Payroll (Payroll)		
	Franchisee/owner comp. etc. (25% of payroll)		
	Subtotal		
Franchise	\$118,707 NL	\$ 808,794	30%
	Construction		
	Service		
	Electric		
	Water		
	Gas		
	Phone		
	Total Franchisee		
	Owner		
	Subtotal		
Owner	\$118,707 NL	\$,367,340	6%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
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	Subtotal		
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	Subtotal		
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	Subtotal		
State	\$118,707 NL	702,483	2%
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	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		
	State Tax (Corporate Income, EITOL, property, license, etc.)		
	Subtotal		
State	\$118,707 NL	702,483	2%
	State Run Fuel Tax		
	Local Run Fuel Tax		

Table 8-5
Economic Impact of the Shoreside Processing Industry
on the Prince William Sound during the Fourth Quarter, 1993

Employment	Avg. Number of Employees/Month	222			Percent of Total
	Total Processing Payroll	792,582			
	Fringe benefits, workers comp., etc. (30% of payroll)	237,774			
	Aides	8,755			
	SUB-TOTAL	1,039,110	1,039,110		65%
Purchases	Consumables	48,402			
	Services	54,756			
	Electric	302,678			
	Water	45,340			
	Sewer	27,598			
	Phone	13,491			
	Trash Removal	8,042			
	Other	42,500			
	SUB-TOTAL	542,807	542,807		34%
Taxes	State Raw Fish Tax	732			
	Local Raw Fish Tax	407			
	Other State Taxes (corporate income, ASME, property, licenses, etc.)	271			
	SUB-TOTAL	1,409	1,409		0%
Fish (Ex-Vessel Value of Purchase)					
Crab	Red King	-			
	Brown/Blue	-			
	Hard	-			
	Oysio	-			
	Dungeness	-			
	Misc. Shellfish	-			
Groundfish	Pollock	-			
	Pacific Cod	27,103			
	Flounders	-			
	Rockfish	-			
	Misc. Groundfish	-			
Salmon	Chinook	-			
	Sockeye	-			
	Coho	-			
	Pink	-			
	Chum	-			
Herring	Spawn-on-Kelp	-			
	Food/Bait	-			
	Sac Roe	-			
Other	Subfish	-			
	Halibut	-			
	Shrimp	-			
	SUB-TOTAL	27,103	27,103		2%
TOTAL DIRECT EXPENDITURES			1,610,429		100%
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED					
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly) 4,026,074					

Table 8-6
1993 Purchases of Fish and Shellfish in the Prince William Sound
by the Shoreside Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	-	-
Brown/Blue	-	-	-	-	-
Bairdi	-	-	-	-	-
Opilio	-	-	-	-	-
Dungeness	-	197,631	197,631	-	395,263
Misc. Shellfish	-	-	-	-	-
Pollock	-	1,874	-	-	1,874
Pacific Cod	1,505,709	1,204,567	150,571	150,571	3,011,417
Flounders	-	-	-	-	-
Rockfish	40,939	27,293	-	-	68,232
Misc. Groundfish	-	-	-	-	-
Chinook	-	337,574	337,574	-	675,147
Sockeye	-	7,412,694	3,176,869	-	10,589,563
Coho	-	689,271	2,757,082	-	3,446,353
Pink	-	1,648,009	14,832,077	-	16,480,086
Chum	-	3,731,804	3,731,804	-	7,463,607
Spawn-on-Kelp	-	-	-	-	-
Food/Bait	-	2,174,081	-	-	2,174,081
Sac Roe	-	2,059,776	-	-	2,059,776
Sablefish	-	1,696,854	424,214	-	2,121,068
Halibut	-	831,200	207,800	-	1,039,000
Shrimp	-	-	-	-	-
Total	1,546,648	22,012,627	25,815,621	150,571	49,525,467
	3%	44%	52%	0%	100%

Impacts in Southeast Alaska

9.1 Introduction

Tables 9-1 through 9-4 display the annual and quarterly economic impact of the shoreside seafood processing industry in Southeast Alaska during 1993. The total impact was \$672 million, of which \$269 million were direct expenditures. Of this amount, \$184 million was spent on purchases of fish and shellfish, \$60 million was spent on labor, \$11.6 million was spent on purchases of goods and services, and \$12.4 million was spent on tax related items. Figure 9-1 shows the direct expenditures by quarter, while Figure 9-2 shows the direct expenditures from each category as a percent of the total.

On an annual basis, shoreside seafood processing companies spent \$0.80 for every pound of fish and shellfish processed during 1993.

9.2 Purchases of Fish and Shellfish

Table 9-6 shows the poundage of fish and shellfish purchased by quarter in Southeast Alaska during 1993; for ex-vessel expenditures by the shoreside processing industry by species and quarter during 1993, see the "Fish Purchases" categories of Tables 9-1 through 9-5 for detailed information. Figures 9-3 and 9-4 display the percentage distribution of fish and shellfish purchased by the shoreside processors during 1993 by major species group in pounds purchased and value respectively.

During 1993, 336 million pounds of fish and shellfish were purchased in the region. The dominant species consisted of pink salmon (169 million pounds), followed by chum salmon (55.5 mil-

Figure 9-1
Distribution of Direct Expenditures by Shoreside Processing Industry In Southeast Alaska during 1993

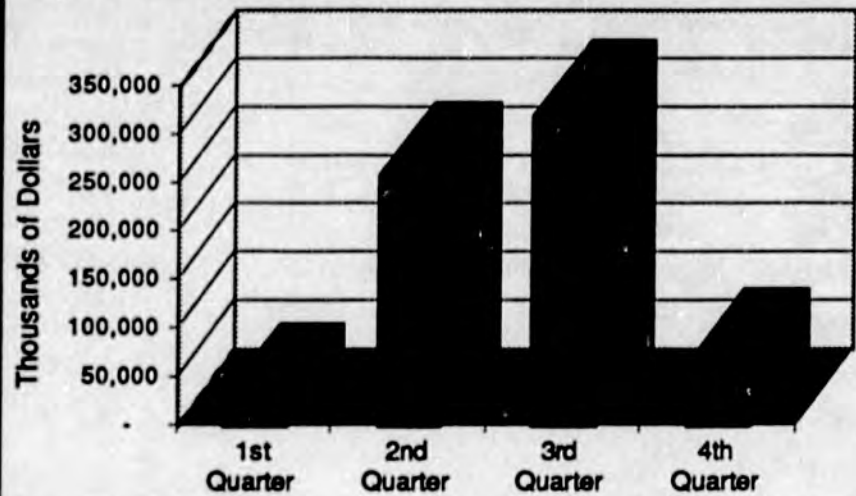
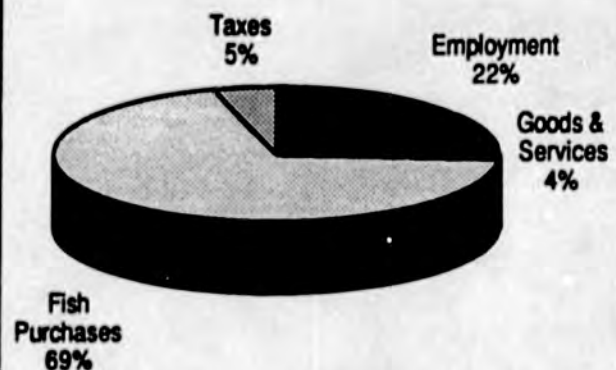


Figure 9-2
Percent Distribution of Expenditures by Shoreside Processing Industry In Southeast Alaska during 1993



lion pounds), coho salmon (22 million pounds), sac roe herring (21.9 million pounds), sockeye salmon (18.7 million pounds), sablefish (17.8 million pounds), and halibut (12.7 million pounds). On a quarterly basis, 2% (6 million pounds) was processed in the first quarter, 30% (100 million

Figure 9-3
Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Southeast Alaska during 1993 (In percent of total pounds)

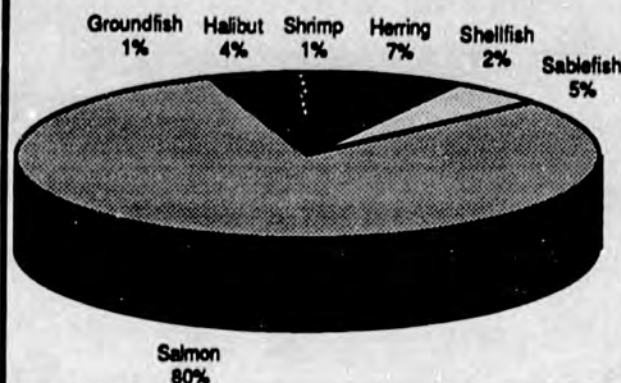
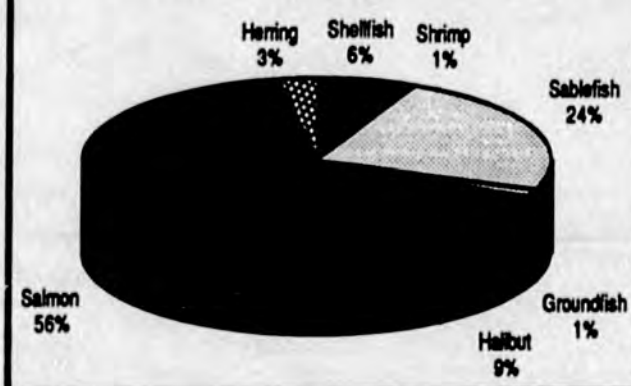


Figure 9-4
Distribution of Fish & Shellfish by Major Species Category Purchased by the Shoreside Processing Industry in Southeast Alaska during 1993 (In percent of total value)



pounds) in the second quarter, 67% (225 million pounds) in the third quarter, and 1% (4.5 million pounds) in the fourth quarter.

In terms of ex-vessel values, sablefish generated the greatest overall revenue (\$44.5 million), followed by pink salmon (\$28.8 million), chum salmon (\$26 million), coho salmon (\$23 million), sockeye salmon (\$17.2 million), and halibut (\$15.8 million).

9.3 Employment

An average of 1,553 individuals per month were employed in Southeast Alaska by the shoreside processing industry during 1993. Employment fluctuated through the year, with the first and the fourth quarters generating the lowest aver-

age employment (626 and 940 respectively). During the second and third quarters, employment opportunity was significantly greater with 1,410 and 3,234 direct jobs available. Total wages and benefits paid to employees during the year were \$60 million.

9.4 Purchases of Goods and Services

A total of \$11.6 million in goods and services were purchased by the shoreside seafood processing companies in Southeast Alaska during 1993. On a quarterly basis, the expenditures consisted of \$1.7 million for the first quarter, \$3 million for the second quarter, \$4.6 million for the third quarter, and \$2.2 million for the fourth quarter.

By category, the expenditures consisted of \$6.4 million for consumables, \$2.3 million for services, \$2 million for electricity, \$368,000 for water, \$81,000 for sewer services, and \$291,000 for other purchases.

9.5 Fish Taxes

Purchases of fish and shellfish in Southeast Alaska by the shoreside processing industry in 1993 generated \$12.4 million in state and local taxes. Of this amount, \$5.3 million was paid directly to local governments through local taxes or from the state through raw fish tax revenue sharing.

Table 9-1
Economic Impact of the Shoreside Processing Industry
on the Aleutians/Bering Sea Region during 1993

Employment	Peak Monthly Employment	3,497	
	Avg. Number of Employees/Month	1,553	
	Total Processing Payroll	46,111,281	
	Fringe benefits, workers comp., etc. (30% of payroll)	13,833,384	
	Airfare	414,152	
	SUB-TOTAL	60,358,817	60,358,817
Purchases	Consumables	6,440,897	
	Services	2,296,468	
	Electric	2,154,266	
	Water	367,634	
	Sewer	81,012	
	Phone	200,082	
	Trash Removal	75,694	
	Other	15,534	
	SUB-TOTAL	11,631,586	11,631,586
Taxes	State Raw Fish Tax	4,977,053	
	Local Raw Fish Tax	2,765,029	
	Other State Taxes (corporate income, ASMI, property, licenses, etc.)	4,700,496	
	SUB-TOTAL	12,442,577	12,442,577
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	1,060,504	
	Brown/Blue	465,415	
	Bairdi	2,829,276	
	Opilio	-	
	Dungeness	3,212,388	
	Misc. Shellfish	3,112,611	
	Pollock	78,198	
	Pacific Cod	100,040	
	Flounders	681	
	Rockfish	2,267,624	
Groundfish	Misc. Groundfish	-	
	Chinook	8,371,570	
	Sockeye	17,206,254	
	Coho	22,968,406	
	Pink	28,799,678	
	Chum	26,178,727	
	Spawn-on-Kelp	417,371	
	Food/Bait	8,800	
	Sac Roe	4,784,441	
	Sablefish	44,545,266	
Salmon	Halibut	15,799,773	
	Shrimp	2,128,255	
	SUB-TOTAL	184,335,279	184,335,279
	TOTAL DIRECT EXPENDITURES		268,768,260
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly)			671,920,650

Table 9-2
Economic Impact of the Shoreside Processing Industry
on the Southeast Alaska during the First Quarter, 1993

Employment	Avg. Number of Employees/Month	626	
	Total Processing Payroll	2,158,388	
	Fringe benefits, workers comp., etc. (30% of payroll)	647,516	
	Airfare	5,037	
	SUB-TOTAL	2,810,942	2,810,942
Purchases	Consumables	929,670	
	Services	320,290	
	Electric	370,009	
	Water	69,021	
	Sewer	16,365	
	Phone	26,947	
	Trash Removal	9,189	
	Other	-	
	SUB-TOTAL	1,741,491	1,741,491
Taxes	State Raw Fish Tax	169,742	
	Local Raw Fish Tax	94,301	
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	62,868	
	SUB-TOTAL	326,911	326,911
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	-	
	Brown/Blue	232,707	
	Bairdi	2,829,276	
Groundfish	Opilio	-	
	Dungeness	-	
	Misc. Shellfish	778,153	
	Pollock	-	
	Pacific Cod	25,010	
	Flounders	-	
	Rockfish	566,906	
Salmon	Misc. Groundfish	-	
	Chinook	837,157	
	Sockeye	-	
	Coho	-	
	Pink	-	
	Chum	-	
Herring	Spawn-on-Kelp	-	
	Food/Bait	7,040	
	Sac Roe	478,444	
Other	Sablefish	-	
	Halibut	-	
	Shrimp	532,064	
	SUB-TOTAL	6,286,757	6,286,757
TOTAL DIRECT EXPENDITURES			11,166,102
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly)			27,915,254

Table 9-3
Economic Impact of the Shoreside Processing Industry
on the Southeast Alaska during the Second Quarter, 1993

Employment	Avg. Number of Employees/Month	1,410	
	Total Processing Payroll	4,539,076	
	Fringe benefits, workers comp., etc. (30% of payroll)	1,361,723	
	Airfare	157,224	
	SUB-TOTAL	6,058,023	6,058,023
Purchases	Consumables	1,858,947	
	Services	597,250	
	Electric	452,384	
	Water	74,874	
	Sewer	16,618	
	Phone	45,983	
	Trash Removal	10,782	
	Other	6,214	
	SUB-TOTAL	3,063,053	3,063,053
Taxes	State Raw Fish Tax	2,394,965	
	Local Raw Fish Tax	1,330,536	
	Other State Taxes (corporate income, ASMI, property, licenses, etc.)	887,024	
	SUB-TOTAL	4,612,525	4,612,525
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	-	
	Brown/Blue	-	
	Bairdi	-	
	Opilio	-	
Groundfish	Dungeness	1,070,796	
	Misc. Shellfish	778,153	
	Pollock	78,198	
	Pacific Cod	25,010	
	Flounders	681	
	Rockfish	340,144	
	Misc. Groundfish	-	
Salmon	Chinook	3,348,628	
	Sockeye	12,044,378	
	Coho	2,296,841	
	Pink	2,879,968	
	Chum	7,853,618	
Herring	Spawn-on-Kelp	417,371	
	Food/Bait	-	
Other	Sac Roe	4,305,997	
	Sablefish	40,090,739	
	Halibut	12,639,818	
	Shrimp	532,064	
	SUB-TOTAL	88,702,404	88,702,404
TOTAL DIRECT EXPENDITURES			102,436,005
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly)			256,090,012

Table 9-4
Economic Impact of the Shoreside Processing Industry
on the Southeast Alaska during the Third Quarter, 1993

Employment	Avg. Number of Employees/Month	3,234	
	Total Processing Payroll	27,561,105	
	Fringe benefits, workers comp., etc. (30% of payroll)	8,268,331	
	Airfare	208,982	
	SUB-TOTAL	36,038,418	36,038,418
Purchases	Consumables	2,676,945	
	Services	946,520	
	Electric	745,902	
	Water	120,074	
	Sewer	22,618	
	Phone	93,586	
	Trash Removal	35,317	
	Other	5,437	
	SUB-TOTAL	4,646,398	4,646,398
Taxes	State Raw Fish Tax	2,233,558	
	Local Raw Fish Tax	1,240,865	
	Other State Taxes (corporate income, ASML, property, licenses, etc.)	827,244	
	SUB-TOTAL	4,301,667	4,301,667
Fish (Ex-Vessel Value of Purchase)			
Crab	Red King	-	
	Brown/Blue	-	
	Bairdi	-	
	Opilio	-	
Groundfish	Dungeness	1,376,738	
	Misc. Shellfish	778,153	
	Pollock	-	
	Pacific Cod	25,010	
	Flounders	-	
	Rockfish	226,762	
	Misc. Groundfish	-	
Salmon	Chinook	2,092,892	
	Sockeye	5,161,876	
	Coho	20,671,565	
	Pink	25,919,710	
	Chum	18,325,109	
Herring	Spawn-on-Kelp	-	
	Food/Bait	-	
Other	Sac Roe	-	
	Sablefish	4,454,527	
	Halibut	3,159,955	
	Shrimp	532,064	
	SUB-TOTAL	82,724,361	82,724,361
TOTAL DIRECT EXPENDITURES			127,710,844
AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED			
TOTAL ECONOMIC IMPACT (\$1.50 generated for every \$1 spent directly)			319,277,111

Table 9-5
**Economic Impact of the Shoreline Processing Industry
 on the Southeast Alaska during the Fourth Quarter, 1993**

Employment	Avg. Number of Employees/Month	
	Total Processing Payroll	Fringe benefits, workers comp., etc. (50% of payroll)
	940	
	11,813,712	3,513,813
	42,908	
	15,431,433	15,431,433
Purchases	Consumables	979,334
	Services	432,408
	Electric	343,971
	Water	103,467
	Sewer	25,411
	Phone	33,563
	Traffic Removal	20,405
	Other	3,884
	SLB TOTAL	2,180,645
Taxes	State Raw Fish Tax	179,787
	Local Raw Fish Tax	99,326
	Other State Taxes (corporate income, ASMC, property, license, etc.)	46,218
	SLB TOTAL	344,331
Fish (Ex-Vessel Value of Purchases)		
	Cod	
Groundfish	Red King	1,060,504
	Brown/Bleu	222,787
	Salmon	-
	Opilio	-
	Emergence	794,814
	Misc. Shellfish	779,113
	Pollock	-
	Pacific Cod	25,037
	Flounder	-
	Rockfish	1,333,812
	Misc. Groundfish	-
	Chinook	2,092,892
Salmon	Sockeye	-
	Coho	-
	Pink	-
	Chum	-
	Spawn on Kelp	-
	Food/Bait	1,760
	Sea Race	-
	Salmonfish	-
	Halibut	-
	Shrimp	332,064
	SLB TOTAL	6,620,797
Hauling		
	Other	-
TOTAL DIRECT EXPENDITURES		24,594,166
	AVERAGE DIRECT EXPENDITURE PER POUND PROCESSED	

TOTAL ECONOMIC IMPACT (All \$B generated for every \$1 spent directly) 47,425,512

Table 9.4
1993 Purchases of Fish and Shellfish in the Southeast Alaska
by the Shorewide Processing Industry (by quarter, in pounds)

	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Red King	-	-	-	9,520,649	9,520,649
Brown/Blue	2,705,548	-	-	2,705,548	5,411,096
Salmon	20,412,099	-	-	-	20,412,099
Opilio	119,712,276	-	-	-	119,712,276
Dungeness	-	29,928,068	-	-	29,928,068
Misc. Shellfish	1,015,922	1,015,922	2,136,513	761,817	4,930,174
Pollack	471,293,640	61,772,627	1,171,922	1,015,922	5,277,718
Pacific Cod	73,779,414	80,123,973	676,614,073	40,810,774	1,270,327,134
Flounder	5,762,946	5,767,466	7,113,614	14,787,083	234,916,064
Rockfish	1,101,929	1,011,916	5,671,949	5,671,949	22,824,419
Misc. Groundfish	38,327	25,613	677,679	1,040,511	3,043,236
Chinook	471,904	3,926,903	25,613	25,613	943,373
Sockeye	-	294,997,937	3,229,138	1,179,799	8,017,794
Coho	-	5,815,000	872,022,757	-	277,121,752
Pink	-	31,904,227	27,792,444	-	33,599,224
Chum	-	30,000,000	281,613,162	-	333,613,162
Spawson Kelp	-	622,041	49,875,178	-	81,725,014
Freshwater	64,000	3,015,113	-	-	422,041
Sac Roe	2,144,676	79,725,413	6,518,258	10,000	8,112,811
Salmon	-	36,547,416	-	-	77,321,191
Shellfish	-	23,820,214	5,424,636	-	41,774,162
Shrimp	715,002	716,032	8,497,796	-	42,227,000
			716,032	716,032	2,827,668
Total	714,245,565	624,814,523	1,247,122,134	94,043,593	5,712,824,443
	27%	24%	45%	4%	100%
					7,414,309
					927,622

SCOMM

95:11

Alaska Department of Fish and Game
Fisheries and Business Division
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Prepared by:



AN ASSESSMENT OF THE CUMULATIVE IMPACTS OF
DEVELOPMENT AND HUMAN USES ON
FISH HABITAT IN THE
KENAI RIVER
KENAI, ALASKA

EXECUTIVE SUMMARY

The Kansas River Cumulative Impacts Assessment of Development Impacts on Fish Habitat, was funded in part by the ACF's Section 309 Enhancement Grant Program. This study was designed to identify and evaluate the cumulative and secondary effects of development actions including public and private land use impacts on Kansas River fish habitat. The ADFACO established a Technical Advisory Group (TAG) to help define the issues and identify an appropriate methodology to be used for the assessment. The TAG was composed of representatives from all state and federal resource agencies with regulatory and management responsibilities on the Kansas River. The TAG was provided a summary of the results of the ADFACO's cumulative impact methodology literature search which was completed in the initial phase of the Kansas River 309 study. The ADFACO also recommended the TAG consider the use of the U.S. Fish and Wildlife Service (USFWS) developed Habitat Evaluation Procedures (HEP) as the process to be used for the impact analysis portion of the study. The group consulted with this recommendation. The TAG also consulted with the ADFACO regarding the investigation for the development of a habitat classification process for the Kansas River's fish habitat that incorporates a combination of assessment techniques including: aerial photography assessment, field inventory, and the use of a Geographic Information System (GIS) for data compilation and analysis.

Existing mapped and/or digital data for land ownership, soils and vegetation types were obtained through the Soil Conservation Service (SCS) and the Kansas Forestry Service (KFS). This information was edited and stored for use in our assessment efforts on the GIS in the ADFACO's regional office in Ash Grove. Information from this data set was edited and provided to the SCS for inclusion in their watershed report.

Field data compilation and groundtruthing of aerial photography interpretation data was initiated during the fall 1992 low water period and was completed during the summer and fall of 1993. The field survey resulted in an inventory of existing bank and fish habitat conditions occurring along the entire 67 miles of Kansas River mainstem from the outlet of Kansas Lake to the Saline Lake inlet and from Saline Lake's outlet downstream to its confluence with Upper Creek inlet near the City of Kansas. All natural and disturbed bank habitat conditions were inventoried using a field data inventory form and water phase determination. Data collected included vegetation type and coverage as well as the river's ordinary high water (OHW) mark and the top of bank. (disturbance and measurement) of all structures and bank alterations observed. Positions were confirmed using Global Positioning Satellite (GPS) receivers that were differentially corrected to a resolution of 10.0 feet.

The diverse habitat types occurring along the river's 67 mile length (196.1 miles of water frontage) provide a varying degree of habitat value to juvenile salmon. The inventory waters of the Kansas River provide critical early life stage rearing habitat for juvenile chinook salmon. Minimum rearing habitat within the Kansas River, which occurs only in a very narrow (6.0 foot

wide) corridor adjacent to the river's banks, has been described in previous studies by the ADF&G and USF&WS (Bendock, et al., 1988; Burger, et al., 1983). Over 80% of all rearing juvenile chinook are found in this corridor. The total area within this narrow corridor including both the river's upland and island shorelines amounts to a mere 121 acres. It should be noted, however, that much of this 121 acres does not constitute good juvenile chinook salmon rearing habitat because: a) it is a tidally influenced reach with brackish water conditions, and no cover habitat or lacks an adequate food source; b) it is naturally unsuitable to rearing juvenile salmon due to high water velocities and/or a lack of cover habitat; c) alteration of natural conditions by man associated with river access have led to vegetation loss and/or bank erosion; d) the nearshore habitat has been altered as a result of bank stabilization and property protection efforts.

The field inventory and fish habitat classification analysis completed in this study has documented that between 11.1 % to 12.4 % (18.4 to 20.6 miles) of the river's 134 miles of upland and 32 miles of island shoreline and nearshore habitats have been impacted by bank trampling, vegetation denuding, and structural development along the river's banks. The two different lengths or percentages cited above relate to the habitat impacts measured at either the O&TW line or at the top of the bank. Optimum fish rearing conditions (i.e., water velocities less than 1.0 foot per second, undercut banks with overhanging vegetation, and gravel/cobble substrates) occurs on only 80,442.8 feet (15.2 miles or 9.2 %) of this important fish rearing corridor along the entire river length. Study results indicate that 63,299.0 feet (12.0 miles) of this corridor is currently in the developed/impacted category. This amounts to approximately 8.7 acres of the total 121 acres of the river's available juvenile rearing habitat. The sum of the impacted habitats (8.7 acres) and the naturally unsuitable habitat for rearing fish (which includes all of the Kenai River 309 Study's Reach 1 or lower 10 miles of river nearshore habitat)(15.7 acres) and the heavily trampled or denuded areas documented on the river (5.1 acres) equals 29.5 acres or 24.4% of the river's total nearshore habitat. This leaves a total of 91.5 acres (75.6%) of usable mainstem habitat for juvenile fish of which only 11.0 acres (9.2%) provide their ideal rearing conditions.

The field inventory information collected was entered into the GIS database for tabulation and graphical analysis. The tabulated data was then used to complete a HEP analysis. HEP converts both the natural and developed habitat areas into a relative value for fish habitat. HEP was developed as a tool to document the quantity and quality of available habitat for a selected fish and/or wildlife species in a given area and uses a species/habitat relationship approach to impact assessment. HEP identifies key habitat components for a species of interest (e.g., an indicator species) which are used for a comparison of existing or future habitat conditions to the optimum habitat conditions for that species.

The HEP assessment approach is based on the fundamental assumption that certain specified habitat parameters can be described numerically and ranked. This ranking allows for the comparative analysis of habitat change over time resulting from individual or multiple development projects or other habitat altering activities (e.g public and private access, recreational uses, etc.). Comparative analysis is used to determine the overall impact of habitat change within a system in terms of net gain or loss of habitat units (HU's) associated with these activities.

HEP characterizes habitat quality using a Habitat Suitability Index (HSI) value. HSI's are derived from established or project developed Suitability Indices (SI) or Curves. The HSI is a numerical value ranging from 0.0 to 1.0 and is generated from an analysis of the ability of key habitat components to supply the life requisites of the indicator species. HSI's assign a value to a species' key habitat component(s) or variables. This value represents that habitat components relative importance to the evaluation species and is based upon what is considered optimum habitat for that species.

Overall habitat impact can be assessed by calculating the gain or loss of Habitat Units (HU's) associated with a land use or development action affecting fish habitat. Mean HSI values (the sum of all the suitability index values identified for a species individual habitat components divided by the total number of habitat component SI's defined) are used to calculate the HU's available for the species of concern. The mean HSI values, which are calculated for the habitat conditions occurring as a result of a project or use that has changed the naturally occurring habitat characteristics, are multiplied by the area affected by the habitat altering activity. The product of this calculation defines the HU's available to the indicator species as a result of the activity. The HU's can be used for comparative analysis or an assessment of the amount of habitat gained or lost to the overall system resulting from an action or group of actions which has or will likely affect the system.

The Kenai River 309 study results indicate that there are 1,482,790 HU's currently available to juvenile chinook salmon in the Kenai River mainstem (See Table 14). These units are distributed throughout six different undeveloped shoreline habitat categories and another six developed shoreline or structures categories. These fish habitat classification categories include: ideal rearing habitat, vegetated undeveloped habitat, vegetated slightly degraded habitat, heavily degraded habitat, non-eroding gravel banks, and erosional gravel banks. The developed categories include: boat launches and access; docks, decks and other structures; bank protection measures; bulkheads; jetties and groins; and "other development".

Of the total 877,074.2 feet (166.1 miles) of waterfront on the river, 813,775.2 feet (154.1 miles) are in natural state and provide 1,409,601 HU's for rearing chinook salmon. There is currently another 63,299.0 feet (12.0 miles) of water frontage in some form of developed status which, while providing less favorable conditions for rearing fish than that of the natural bank, comprises another 73,189 HU's for these fish. Together they amount to 1,482,790 HU's in the Kenai River for rearing juvenile chinook salmon.

By defining the area of habitat within the river's 6.0 foot corridor along the banks that is either currently developed or altered by man-made structures or that which has been severely impacted by access resulting in heavy trampling, vegetation loss and bank instability, we have estimated that prior to the presence of these impacts, there was originally 1,523,144 HU's available to rearing juvenile chinook salmon in the Kenai River mainstem (See Table 15). The difference between this figure and the 1,482,790 HU's which currently exist is the amount of habitat lost or gained (lost in this case) to rearing fish. This amounts to 40,354 HU's.

The Development Trends Analysis, currently underway and scheduled to be completed in June 1994, will provide an important insight into the rate at which this habitat loss is occurring on

the Kenai River. This analysis uses aerial photograph interpretation of development conditions that existed in 1963/64 and compares those conditions to the documented development scenario observed during the 1993 Kenai River 309 study. Such an analysis can be used not only to determine how much development has taken place over the last 30 years, but can also be used as an interpretive tool to extrapolate future development scenarios and estimate the level of additional impact and habitat change (loss or gain) that can be anticipated in the future. This analysis will be included in the final cumulative impact report due in June.

All future development projects, maintenance projects, and land uses that affect the river and its shoreline will have to consider the limits of available habitat within this system that is critical to the continued production of the Kenai's world class chinook salmon population. If we are to continue to be afforded the opportunity to harvest these fish either commercially, recreationally, or under personal use methods and means, we must avoid the continued cumulative loss of their nursery habitat.

The results of this analysis are intended to provide a basic understanding of the current condition of the nearshore fish habitat occurring on the Kenai River mainstem. This information is intended to help educate the general public of the effects of development and access related habitat impacts that potentially affect the river's ability to continue to produce healthy runs of chinook salmon. The data will provide a basis for the ADF&G to draft Alaska Coastal Management Program ABC list proposals that result in the approval of sound development projects while promoting efficiency in the application of the coastal review process.

One of the primary objectives for the use of the Kenai River 309 project results has been to assist the local coastal district (Kenai Peninsula Borough)(KPB) in the review of their existing coastal management plans policies. The study results are intended to be used as a tool in the district's effort to develop revised or new enforceable policies that can be implemented by the KPB as well as the existing state and federal regulatory agencies charged with Kenai River management responsibilities.

Finally, the developed database and analysis process will be used by the ADF&G and hopefully other management agencies to evaluate all future development actions using a cumulative impacts assessment approach which considers the entire Kenai River watershed rather than just the individual project and its immediate and/or local effects.

APPENDIX A

TABLES

CORRECTION

THE FOLLOWING DOCUMENT(S)
HAVE BEEN REFILMED TO
ASSURE LEGIBILITY OR PAGINATION



Rev. 6/98

Central Microfilm Services
Department of Education
State of Alaska

APPENDIX A

TABLES

TABLE 1

**FISH COVER TYPES AND SUBSTRATE CATEGORIES
WITHIN THE KENAI RIVER**

COVER AND SUBSTRATE TYPE	CODE
<u>COVER TYPE</u>	
No Object Cover	COV-NC
Emergent Vegetation	COV-EV
Aquatic Vegetation	COV-AV
Debris or Deadfall	COV-DD
Overhanging Riparian Vegetation	COV-OV
Undercut Banks	COV-UB
<u>SUBSTRATE CATEGORIES</u>	
Mud, Silt or Sand (0" to 0.25")	SUB_M
Gravel (0.25" to 3" diameter)	SUB_G
Cobble (3" to 5" diameter)	SUB_C
Rubble (5" or greater in diameter)	SUB_R

TABLE 2
(Code Key)

PROPERTY OWNERSHIP CODE DEFINITIONS

<u>CODE</u>	<u>LAND OWNERSHIP</u>	<u>CODE</u>	<u>LAND OWNERSHIP</u>
RSU - Residential, Undeveloped		NCU - Native Land, CIRI, Undeveloped	
RSD - Residential, Developed		NCD - Native Land, CIRI, Developed	
COU - Commercial, Undeveloped		NSU - Native Land, Salamatof Corp., Undeveloped	
COD - Commercial, Developed		NSD - Native Land, Salamatof Corp., Developed	
FBU - Federal Bureau of Land Management, Undeveloped		KBU - Kenai Peninsula Borough, Undeveloped	
FBD - Federal Bureau of Land Management, Developed		KBD - Kenai Peninsula Borough, Developed	
FSU - Federal Forest Service Lands, Undeveloped		CSU - City of Soldotna, Undeveloped	
FSD - Federal Forest Service Lands, Developed		CSD - City of Soldotna, Developed	
FWU - Federal Fish and Wildlife Service, Undeveloped		CKU - City of Kenai, Undeveloped	
FWD - Federal Fish and Wildlife Service, Developed		CKD - City of Kenai, Developed	
SPU - State Parks and Outdoor Recreation, Undeveloped		UAU - Univeresity of Alaska, Undeveloped	
SPD - State Parks and Outdoor Recreation, Developed		UAD - University of Alaska, Developed	
SOU - State Division of Lands, Undeveloped		OTH - Other (Church of Kenai)	
SOD - State Division of Lands, Developed			

TABLE 2

**LAND OWNERSHIP, DEVELOPMENT STATUS AND
WATERFRONTAGES BY STUDY REACH**

OWNER CODE	STUDY REACH 1			STUDY REACH 2			STUDY REACH 3		
	OWNER COUNT	WATER FRONTAGE	% OF ZONE	OWNER COUNT	WATER FRONTAGE	% OF ZONE	OWNER COUNT	WATER FRONTAGE	% OF ZONE
CKD	6	3302.8	2.9	0	0	0	0	0	0
CKU	19	66026.9	57.9	2	4980.3	4.3	0	0	0
COD	8	5129.6	4.5	25	14836.1	12.8	30	8230.2	3.4
COU	0	0	0	0	0	0	6	3199.6	1.3
CSD	0	0	0	0	0	0	4	5909.5	2.4
CSU	0	0	0	0	0	0	12	10980.6	4.5
FBD	0	0	0	0	0	0	0	0	0
FBU	0	0	0	0	0	0	0	0	0
FSD	0	0	0	0	0	0	0	0	0
FSU	0	0	0	0	0	0	0	0	0
FWD	0	0	0	0	0	0	0	0	0
FWU	0	0	0	0	0	0	0	0	0
KBD	0	0	0	0	0	0	0	0	0
KBU	0	0	0	2	68.0	0.1	3	2996.2	1.2
NCU	0	0	0	3	3725.0	3.2	1	6262.1	2.6
NSD	0	0	0	0	0	0	4	1022.6	0.4
NSU	0	0	0	0	0	0	52	27949.7	11.5
OTH	1	140.0	0.1	0	0	0	0	0	0
RSD	35	7851.0	6.9	91	14613.0	12.6	397	67571.6	27.9
RSU	59	14215.0	12.5	84	17166.3	14.8	432	72543.1	30.1
SOD	0	0	0	1	600.0	0.5	6	5146.2	2.1
SOU	4	17325.0	15.2	20	53095.8	45.9	14	23293.1	9.6
SPD	0	0	0	2	2775.0	2.4	3	4383.8	1.8
SPU	0	0	0	2	3836.1	3.4	1	1273.6	0.5
UAU	0	0	0	0	0	0	1	1350.0	0.7
TOTAL	132	113,990.3	101.0	232	115,695.6	100.0	966	242,111.9	100.0

TABLE 2 (Continued)

**LAND OWNERSHIP, DEVELOPMENT STATUS AND
WATER FRONTAGE BY STUDY REACH**

OWNER CODE	STUDY REACH 4			STUDY REACH 5			TOTAL KENAI RIVER		
	OWNER COUNT	WATER FRONTAGE	% OF REACH	OWNER COUNT	WATER FRONTAGE	% OF REACH	OWNER COUNT	WATER FRONTAGE	% OF TOTAL
CKD	0	0	0	0	0	0	4	3302.8	0.4
CKU	0	0	0	1	746.1	0.3	22	71753.3	0.2
COD	4	624.4	0.4	5	3290.2	1.3	72	32110.5	3.7
COU	0	0	0	0	0	0	6	3199.6	0.4
CSD	0	0	0	0	0	0	4	5909.5	0.8
CSU	0	0	0	0	0	0	12	10900.6	1.3
FBD	0	0	0	1	2917.3	1.2	1	2917.3	0.3
FBU	0	0	0	1	1265.8	0.5	1	1265.8	0.1
PSD	0	0	0	3	15170.6	6.1	3	15170.6	1.7
PSU	0	0	0	8	36065.3	14.5	8	36065.3	4.1
FWD	9	910.0	0.6	3	10299.9	4.2	12	11209.9	1.3
FWU	21	60063.7	30.7	24	141507.1	57.1	45	202450.8	23.1
KBD	0	0	0	1	450.6	0.2	1	450.6	0.1
KBU	2	330.5	0.2	1	140.0	0.1	8	3543.3	0.4
NCU	36	29072.2	10.5	0	0	0	40	39019.3	4.4
NSD	0	0	0	0	0	0	4	1072.6	0.1
NSU	0	0	0	0	0	0	52	27949.7	3.2
OTH	0	0	0	0	0	0	1	140.0	0.1
RSD	136	20200.4	10.0	40	7704.6	3.1	699	121940.6	14.3
RSU	69	13420.9	6.5	13	1672.4	0.7	657	119017.7	13.5
SOD	27	6909.3	4.4	12	11126.7	4.5	46	23702.2	2.6
SCU	34	10523.8	6.7	13	15690.4	6.2	85	119920.1	13.6
SPD	0	0	0	0	0	0	5	7150.8	0.8
SPU	16	6269.4	4.0	0	0	0	19	11379.1	1.3
UAU	0	0	0	0	0	0	1	1350.0	0.2
TOTAL	354	157,132.6	100.0	126	240,143.0	100.0	1,010	877,074.2	100.0

TABLES 3-7
(Code Key)

KINAI OVER STRUCTURED DATABASE CODES

Structure Code	Structure Name	Structure Code	Structure Name
Bayou - B		Barrels - B	
BW10	Mooring	BW10	Seawater Barrel
BW20	Sea Net	BW20	Seawater Barrel
BW30	Navigation or Voucher	BW30	Seawater Floating Waste (Drift)
BW40		BW40	Sea Floating Table (Drift)
Becks - B		Beck Substructures - B	
BW10	Public Permanent Pile Supported	BW10	Log
BW20	Public Temporary Pile Supported	BW20	Timber
BW30	Public Permanent Floating	BW30	Galvanneal
BW40	Public Temporary Floating	BW40	Concrete Substructure
BW50	Commercial Permanent Pile Supported	BW50	Steel Piling
BW60	Commercial Temporary Pile Supported	BW60	Landfill Mat
BW70	Commercial Permanent Floating	BW70	Concrete Sheet
BW80	Commercial Temporary Floating	BW80	Steel Sheet
BW90	Private Individual Permanent Pile Supported	BW90	Pile
BW100	Private Individual Temporary Pile Supported	BW100	Chain Link Fence
BW110	Private Individual Permanent Floating	BW110	Tree
BW120	Private Individual Temporary Floating	BW120	Galvanneal
BW130	Deck, Cast/In-situ	BW130	Galvanneal
BW140	Deck, Other (Describe)	BW140	Steel Rip Rap
BW150	Deck, Cast/In-situ	BW150	Soil Strengthening
Billing - B		BW160	Other (Describe)
BW10	Piling Structure/Pile Supported Structure	BW170	Barriers/SS Galvanneal Drains
BW20	Pile Supported Deck	BW180	Bridge Right-of-Way
BW30	Pile Supported Beam (Hoop)	BW190	Boardwalk
BW40	Pile Supported Deck/Beam	BW200	Seawall (Use Only For)
BW50	Piling, Mooring, Dredging	BW210	Wave Arrest (Use For)
BW60	Public Improved Boat Launch	BW220	Footrest Box
BW70	Public Unimproved Boat Launch	BW230	Seawall Facility
BW80	Commercial Improved Boat Launch	BW240	Waterway Pile
BW90	Commercial Unimproved Boat Launch	BW250	Upstream Pile
BW100	PVT Individual Improved Boat Launch	BW260	Accession (Space Mining, Dredging)
BW110	PVT Individual Unimproved Boat Launch	BW270	Commercial Space Mining, Dredging
BW120	Composite Boat Storage	BW280	Commercial Space Mining, Other (Describe)
BW130	Canals	BW290	Relocation Access Ramp/Canal
BW140	Vessel Boat Storage/Beck	BW300	Other (Describe)
BW150	Vessel Slip	BW310	Accession (Describe)
BW160	Vessel Basin	BW320	Accession (Describe)
BW170	Beck Launch/Ramp	BW330	Accession (Describe)
Canals - C		BW340	Accession (Describe)
CW10	Canal	BW350	Accession (Describe)
CW20	Canal	BW360	Accession (Describe)
CW30	Canal	BW370	Accession (Describe)
CW40	Canal	BW380	Accession (Describe)
CW50	Canal	BW390	Accession (Describe)
CW60	Canal	BW400	Accession (Describe)
CW70	Canal	BW410	Accession (Describe)
CW80	Canal	BW420	Accession (Describe)
CW90	Canal	BW430	Accession (Describe)
CW100	Canal	BW440	Accession (Describe)
CW110	Canal	BW450	Accession (Describe)
CW120	Canal	BW460	Accession (Describe)
CW130	Canal	BW470	Accession (Describe)
CW140	Canal	BW480	Accession (Describe)
CW150	Canal	BW490	Accession (Describe)
CW160	Canal	BW500	Accession (Describe)
CW170	Canal	BW510	Accession (Describe)
CW180	Canal	BW520	Accession (Describe)
CW190	Canal	BW530	Accession (Describe)
CW200	Canal	BW540	Accession (Describe)
CW210	Canal	BW550	Accession (Describe)
CW220	Canal	BW560	Accession (Describe)
CW230	Canal	BW570	Accession (Describe)
CW240	Canal	BW580	Accession (Describe)
CW250	Canal	BW590	Accession (Describe)
CW260	Canal	BW600	Accession (Describe)
CW270	Canal	BW610	Accession (Describe)
CW280	Canal	BW620	Accession (Describe)
CW290	Canal	BW630	Accession (Describe)
CW300	Canal	BW640	Accession (Describe)
CW310	Canal	BW650	Accession (Describe)
CW320	Canal	BW660	Accession (Describe)
CW330	Canal	BW670	Accession (Describe)
CW340	Canal	BW680	Accession (Describe)
CW350	Canal	BW690	Accession (Describe)
CW360	Canal	BW700	Accession (Describe)
CW370	Canal	BW710	Accession (Describe)
CW380	Canal	BW720	Accession (Describe)
CW390	Canal	BW730	Accession (Describe)
CW400	Canal	BW740	Accession (Describe)
CW410	Canal	BW750	Accession (Describe)
CW420	Canal	BW760	Accession (Describe)
CW430	Canal	BW770	Accession (Describe)
CW440	Canal	BW780	Accession (Describe)
CW450	Canal	BW790	Accession (Describe)
CW460	Canal	BW800	Accession (Describe)
CW470	Canal	BW810	Accession (Describe)
CW480	Canal	BW820	Accession (Describe)
CW490	Canal	BW830	Accession (Describe)
CW500	Canal	BW840	Accession (Describe)
CW510	Canal	BW850	Accession (Describe)
CW520	Canal	BW860	Accession (Describe)
CW530	Canal	BW870	Accession (Describe)
CW540	Canal	BW880	Accession (Describe)
CW550	Canal	BW890	Accession (Describe)
CW560	Canal	BW900	Accession (Describe)
CW570	Canal	BW910	Accession (Describe)
CW580	Canal	BW920	Accession (Describe)
CW590	Canal	BW930	Accession (Describe)
CW600	Canal	BW940	Accession (Describe)
CW610	Canal	BW950	Accession (Describe)
CW620	Canal	BW960	Accession (Describe)
CW630	Canal	BW970	Accession (Describe)
CW640	Canal	BW980	Accession (Describe)
CW650	Canal	BW990	Accession (Describe)
CW660	Canal	BW1000	Accession (Describe)
CW670	Canal	BW1010	Accession (Describe)
CW680	Canal	BW1020	Accession (Describe)
CW690	Canal	BW1030	Accession (Describe)
CW700	Canal	BW1040	Accession (Describe)
CW710	Canal	BW1050	Accession (Describe)
CW720	Canal	BW1060	Accession (Describe)
CW730	Canal	BW1070	Accession (Describe)
CW740	Canal	BW1080	Accession (Describe)
CW750	Canal	BW1090	Accession (Describe)
CW760	Canal	BW1100	Accession (Describe)
CW770	Canal	BW1110	Accession (Describe)
CW780	Canal	BW1120	Accession (Describe)
CW790	Canal	BW1130	Accession (Describe)
CW800	Canal	BW1140	Accession (Describe)
CW810	Canal	BW1150	Accession (Describe)
CW820	Canal	BW1160	Accession (Describe)
CW830	Canal	BW1170	Accession (Describe)
CW840	Canal	BW1180	Accession (Describe)
CW850	Canal	BW1190	Accession (Describe)
CW860	Canal	BW1200	Accession (Describe)
CW870	Canal	BW1210	Accession (Describe)
CW880	Canal	BW1220	Accession (Describe)
CW890	Canal	BW1230	Accession (Describe)
CW900	Canal	BW1240	Accession (Describe)
CW910	Canal	BW1250	Accession (Describe)
CW920	Canal	BW1260	Accession (Describe)
CW930	Canal	BW1270	Accession (Describe)
CW940	Canal	BW1280	Accession (Describe)
CW950	Canal	BW1290	Accession (Describe)
CW960	Canal	BW1300	Accession (Describe)
CW970	Canal	BW1310	Accession (Describe)
CW980	Canal	BW1320	Accession (Describe)
CW990	Canal	BW1330	Accession (Describe)
CW1000	Canal	BW1340	Accession (Describe)
CW1010	Canal	BW1350	Accession (Describe)
CW1020	Canal	BW1360	Accession (Describe)
CW1030	Canal	BW1370	Accession (Describe)
CW1040	Canal	BW1380	Accession (Describe)
CW1050	Canal	BW1390	Accession (Describe)
CW1060	Canal	BW1400	Accession (Describe)
CW1070	Canal	BW1410	Accession (Describe)
CW1080	Canal	BW1420	Accession (Describe)
CW1090	Canal	BW1430	Accession (Describe)
CW1100	Canal	BW1440	Accession (Describe)
CW1110	Canal	BW1450	Accession (Describe)
CW1120	Canal	BW1460	Accession (Describe)
CW1130	Canal	BW1470	Accession (Describe)
CW1140	Canal	BW1480	Accession (Describe)
CW1150	Canal	BW1490	Accession (Describe)
CW1160	Canal	BW1500	Accession (Describe)
CW1170	Canal	BW1510	Accession (Describe)
CW1180	Canal	BW1520	Accession (Describe)
CW1190	Canal	BW1530	Accession (Describe)
CW1200	Canal	BW1540	Accession (Describe)
CW1210	Canal	BW1550	Accession (Describe)
CW1220	Canal	BW1560	Accession (Describe)
CW1230	Canal	BW1570	Accession (Describe)
CW1240	Canal	BW1580	Accession (Describe)
CW1250	Canal	BW1590	Accession (Describe)
CW1260	Canal	BW1600	Accession (Describe)
CW1270	Canal	BW1610	Accession (Describe)
CW1280	Canal	BW1620	Accession (Describe)
CW1290	Canal	BW1630	Accession (Describe)
CW1300	Canal	BW1640	Accession (Describe)
CW1310	Canal	BW1650	Accession (Describe)
CW1320	Canal	BW1660	Accession (Describe)
CW1330	Canal	BW1670	Accession (Describe)
CW1340	Canal	BW1680	Accession (Describe)
CW1350	Canal	BW1690	Accession (Describe)
CW1360	Canal	BW1700	Accession (Describe)
CW1370	Canal	BW1710	Accession (Describe)
CW1380	Canal	BW1720	Accession (Describe)
CW1390	Canal	BW1730	Accession (Describe)
CW1400	Canal	BW1740	Accession (Describe)
CW1410	Canal	BW1750	Accession (Describe)
CW1420	Canal	BW1760	Accession (Describe)
CW1430	Canal	BW1770	Accession (Describe)
CW1440	Canal	BW1780	Accession (Describe)
CW1450	Canal	BW1790	Accession (Describe)
CW1460	Canal	BW1800	Accession (Describe)
CW1470	Canal	BW1810	Accession (Describe)
CW1480	Canal	BW1820	Accession (Describe)
CW1490	Canal	BW1830	Accession (Describe)
CW1500	Canal	BW1840	Accession (Describe)
CW1510	Canal	BW1850	Accession (Describe)
CW1520	Canal	BW1860	Accession (Describe)
CW1530	Canal	BW1870	Accession (Describe)
CW1540	Canal	BW1880	Accession (Describe)
CW1550	Canal	BW1890	Accession (Describe)
CW1560	Canal	BW1900	Accession (Describe)
CW1570	Canal	BW1910	Accession (Describe)
CW1580	Canal	BW1920	Accession (Describe)
CW1590	Canal	BW1930	Accession (Describe)
CW1600	Canal	BW1940	Accession (Describe)
CW1610	Canal	BW1950	Accession (Describe)
CW1620	Canal	BW1960	Accession (Describe)
CW1630	Canal	BW1970	Accession (Describe)
CW1640	Canal	BW1980	Accession (Describe)
CW1650	Canal	BW1990	Accession (Describe)
CW1660	Canal	BW2000	Accession (Describe)
CW1670	Canal	BW2010	Accession (Describe)
CW1680	Canal	BW2020	Accession (Describe)
CW1690	Canal	BW2030	Accession (Describe)
CW1700	Canal	BW2040	Accession (Describe)
CW1710	Canal	BW2050	Accession (Describe)
CW1720	Canal	BW2060	Accession (Describe)
CW1730	Canal	BW2070	Accession (Describe)
CW1740	Canal	BW2080	Accession (Describe)
CW1750	Canal	BW2090	Accession (Describe)
CW1760	Canal	BW2100	Accession (Describe)
CW1770	Canal	BW2110	Accession (Describe)
CW1780	Canal	BW2120	Accession (Describe)
CW1790	Canal	BW2130	Accession (Describe)
CW1800	Canal	BW2140	Accession (Describe)
CW1810	Canal	BW2150	Accession (Describe)
CW1820	Canal	BW2160	Accession (Describe)
CW1830	Canal	BW2170	Accession (Describe)
CW1840	Canal	BW2180	Accession (Describe)
CW1850	Canal	BW2190	Accession (Describe)
CW1860	Canal	BW2200	Accession (Describe)
CW1870	Canal	BW2210	Accession (Describe)
CW1880	Canal	BW2220	Accession (Describe)
CW1890	Canal	BW2230	Accession (Describe)
CW1900	Canal	BW2240	Accession (Describe)
CW1910	Canal	BW2250	Accession (Describe)
CW1920	Canal	BW2260	Accession (Describe)
CW1930	Canal	BW2270	Accession (Describe)
CW1940	Canal	BW2280	Accession (Describe)
CW1950	Canal	BW2290	Accession (Describe)
CW1960	Canal	BW2300	Accession (Describe)
CW1970	Canal	BW2310	Accession (Describe)
CW1980	Canal	BW2320	Accession (Describe)
CW1990	Canal	BW2330	Accession (Describe)
CW2000	Canal	BW2340	Accession (Describe)
CW2010	Canal	BW2350	Accession (Describe)
CW2020	Canal	BW2360	Accession (Describe)
CW2030	Canal	BW2370	Accession (Describe)
CW2040	Canal	BW2380	Accession (Describe)
CW2050	Canal	BW2390	Accession (Describe)
CW2060	Canal	BW2400	Accession (Describe)
CW2070	Canal	BW2410	Accession (Describe)
CW2080	Canal	BW2420	Accession (Describe)
CW2090	Canal	BW2430	Accession (Describe)
CW2100	Canal	BW2440	Accession (Describe)
CW2110	Canal	BW2450	Accession (Describe)
CW2120	Canal	BW2460	Accession (Describe)
CW2130	Canal	BW2470	Accession (Describe)
CW2140	Canal	BW2480	Accession (Describe)
CW2150	Canal	BW2490	Accession (Describe)
CW2160	Canal	BW2500	Accession (Describe)
CW2170	Canal	BW2510	Accession (Describe)
CW2180	Canal	BW2520	Accession (Describe)
CW2190	Canal	BW2530	Accession (Describe)
CW2200	Canal	BW2540	Accession (Describe)
CW2210	Canal	BW2550	Accession (Describe)
CW2220	Canal	BW2560	Accession (Describe)
CW2230	Canal	BW2570	Accession (Describe)
CW2240	Canal	BW2580	Accession (Describe)
CW2250	Canal	BW2590	Accession (Describe)
CW2260	Canal	BW2600	Accession (Describe)
CW2270	Canal	BW2610	Accession (Describe)
CW2280	Canal	BW2620	Accession (Describe)
CW2290	Canal	BW2630	Accession (Describe)
CW2300	Canal	BW2640	Accession (Describe)
CW2310	Canal	BW2650	Accession (Describe)
CW2320	Canal	BW2660	Accession (Describe)
CW2330	Canal	BW2670	Accession (Describe)
CW2340	Canal	BW2680	Accession (Describe)
CW2350	Canal	BW2690	Accession (Describe)
CW2360	Canal	BW2700	Accession (Describe)
CW2370	Canal	BW2710	Accession (Describe)
CW2380	Canal	BW2720	Accession (Describe)
CW2390	Canal	BW2730	Accession (Describe)
CW2400	Canal	BW2740	Accession (Describe)
CW2410	Canal	BW2750	Accession (Describe)
CW2420	Canal	BW2760	Accession (Describe)
CW2430	Canal	BW2770	Accession (Describe)
CW2440	Canal	BW2780	Accession (Describe)
CW2450	Canal	BW2790	Accession (Describe)
CW2460	Canal	BW2800	Accession (Describe)
CW2470	Canal	BW2810	Accession (Describe)
CW2480	Canal	BW2820	Accession (Describe)
CW2490	Canal	BW2830	Accession (Describe)
CW2500	Canal	BW2840	Accession (Describe)
CW2510	Canal	BW2850	Accession (Describe)
CW2520	Canal	BW2860	Accession (Describe)
CW2530	Canal	BW2870	Accession (Describe)
CW2540	Canal	BW2880	Accession (Describe)
CW2550	Canal	BW2890	Accession (Describe)
CW2560	Canal	BW2900	Accession (Describe)
CW2570	Canal	BW2910	Accession (Describe)
CW2580	Canal	BW2920	Accession (Describe)
CW2590	Canal	BW2930	Accession (Describe)
CW2600	Canal	BW2940	Accession (Describe)
CW2610	Canal	BW2950	Accession (Describe)
CW2620	Canal	BW2960	Accession (Describe)
CW2630	Canal	BW2970	Accession (Describe)
CW2640	Canal	BW2980	Accession (Describe)
CW2650	Canal	BW2990	Accession (Describe)
CW2660	Canal	BW3000	Accession (Describe)
CW2670	Canal	BW3010	Accession (Describe)
CW2680	Canal	BW3020	Accession (Describe)
CW2690	Canal	BW3030	Accession (Describe)
CW2700	Canal	BW3040	Accession (Describe)
CW2710	Canal	BW3050	Accession (Describe)
CW2720	Canal	BW3060	Accession (Describe)
CW2730	Canal	BW3070	Accession (Describe)
CW2740	Canal	BW	

TABLE 6

DEVELOPMENT/ACCESS STRUCTURES INVENTORY BY STUDY REACH

TOTAL FOR ALL FIVE STUDY REACHES

DRAFT WIS 800 - 01.0

NOTES: TOTAL VALUE = SUM OF VALUE FOR EACH STRUCTURE CATEGORY

STUDY REACH #	STRUCTURES (COUNT)	% OF TOTAL VAL. STRUCTURES	TOTAL VAL. (STRUCTURES) (MILLION)	TOTAL VAL. (MILLION)	TOTAL VAL. (MILLION) (CONSIDER BY VAL. STRUCTURES) (MILLION)	% OF TOTAL VAL. (CONSIDER)
1	140	8.7	8,700	2,310	800,000	10.0
2	400	22.4	22,400	6,270	150,000	18.0
3	810	45.0	45,000	12,000	400,000	50.0
4	140	7.8	18,000	4,900	80,000	10.0
5	100	5.6	10,000	2,800	100,000	12.0
TOTAL VAL.	1,590	100.0	100,000	30,280	1,000,000	100.0

TABLE 10

TRAMPELLED VEGETATION NATURALLY NON-VEGETATED RIVERBANK
AT ORDINARY HIGH WATER AND TOP OF RIVER BANK

STUDY SECTION #	DATE & TIME SITE	REACH WATER- FRONT ACRES (FEET)	TOTAL NO. VEG. COVER (FEET)	NATURAL NO. VEG. COVER (FEET)	% OF TOTAL NO. VEG. COVER	% REACH WATER- FRONT	TRAMPELLED NO. VEG. COVER (FEET)	% OF TOTAL NO. VEG. COVER	% OF REACH WATER- FRONT
1	0115V	0115000.0	91276.6	90266.7	97.66	79.20	2111.7	2.33	1.87
1	7-1-48	0115000.0	100000.0	101000.0	100.00	27.43	4213.2	11.64	3.79
2	0115V	0115000.0	101707.0	101000.0	99.30	24.47	3420.0	10.00	2.94
2	7-1-48	0115000.0	110000.0	101000.0	91.80	5.66	7004.9	16.32	6.94
3	0115V	0115000.0	911000.0	101000.0	100.00	13.79	6000.0	19.82	3.34
3	7-1-48	0115000.0	100776.6	100000.0	100.00	7.60	12212.7	29.00	5.10
4	0115V	0115000.0	400776.6	402776.6	100.00	26.97	7962.2	11.66	3.63
4	7-1-48	0115000.0	1014776.6	100000.0	79.19	18.79	4773.7	21.81	3.81
5	0115V	0115000.0	970000.0	900000.0	100.00	34.50	11224.7	11.50	4.13
5	7-1-48	0115000.0	100000.0	79111.1	79.11	3.18	7420.3	10.79	3.00
6-10-101	0115V	0115000.0	1007776.6	101000.0	100.00	20.40	10000.0	9.80	3.00
6-10-101	7-1-48	0115000.0	101000.0	100000.0	100.00	9.10	10300.0	20.00	4.14

TABLE 11

**VEGETATION TYPES BY STUDY REACH AT ORDINARY HIGH WATER AND
TOP OF RIVER BANK**

STUDY REACH #	RIVER BANK SITE	HERB- ACROU COVER	% TOTAL REACH COVER	WOODY COVER (FEET)	% TOTAL REACH COVER	TREE COVER (FEET)	% TOTAL REACH COVER	NO VEG. NO COVER	% TOTAL REACH COVER	TOTAL COVER (FEET)
1	OHW	20667.2	18.13	1236.9	1.08	709.8	0.63	91376.4	80.16	113990.3
1	TOB	67820.8	59.49	4095.6	3.59	6480.5	5.69	35593.6	31.23	113990.5
2	OHW	49116.8	42.45	19669.4	17.01	15171.0	13.11	31737.1	27.43	115694.3
2	TOB	43610.1	37.68	16990.9	14.69	41682.3	36.03	13419.0	11.60	115702.3
3	OHW	162008.0	66.90	25369.1	10.47	13248.4	5.48	41483.6	17.13	242109.1
3	TOB	62892.4	25.98	51676.0	21.35	96533.8	39.89	30990.8	12.80	242093.0
4	OHW	87175.2	55.47	15300.4	9.74	6582.6	4.19	40076.2	30.60	157134.4
4	TOB	54430.7	34.64	18935.5	12.05	62009.7	39.51	21678.6	13.80	157134.5
5	OHW	79729.5	32.13	44109.5	17.78	17905.3	7.22	106399.3	42.89	248143.6
5	TOB	53657.0	21.62	58272.9	23.48	101714.0	40.99	34500.9	13.90	248144.8
TOTAL	OHW	398696.7	45.46	105685.3	12.05	53617.1	6.11	319072.6	36.38	877071.7
TOTAL	TOB	282411.0	32.20	149970.9	17.10	308500.3	35.17	136182.9	15.53	877065.1

TABLE 12
SUBSTRATE TYPES LISTED BY STUDY REACH
 (Measured in Feet)

STUDY REACH	SUBSTRATE										TYPE
	MLB, SFT	%	GRAVEL	%	COBBLE	%	BUDBLE	%	TOTAL, SUD	%	
1	96006.8	84.3	17259.9	15.1	226.0	0.2	417.6	0.4	113990.3	100.0	
2	33068.3	28.6	51906.2	44.5	26646.8	23.0	4561.7	3.9	115783.0	100.0	
3	16645.6	6.1	89900.5	37.2	98542.6	40.7	38943.2	16.1	242111.9	100.0	
4	32963.9	21.0	81223.1	51.7	36057.1	23.5	6005.7	3.9	157129.8	100.0	
5	9810.4	4.0	60200.1	24.3	77655.5	31.3	100313.2	40.4	248059.2	100.0	
TOTAL	186,575.0	21.3	300,249.8	34.2	239,928.0	27.4	150,321.4	17.1	877,074.2	100.0	

TABLE 13

**AVAILABLE FISH HABITAT COVER TYPES AT OR BELOW
ORDINARY HIGH WATER LINE BY STUDY REACH**

(Measured in Feet)

STUDY REACH #	FISH COVER TYPES							
	NO COVER	%	EMER. VEG.	%	AQUA. VEG.	%	DEBRIS	%
1	104019.6	82.9	9572.5	07.6	25.0	00.1	1912.6	01.5
2	27330.0	14.6	8262.0	04.4	108.0	00.1	10954.6	05.8
3	30682.4	07.7	15457.8	03.9	3297.1	00.8	8152.5	02.1
4	80223.9	38.8	4586.7	02.2	430.0	00.1	11073.5	05.4
5	97027.5	31.6	6574.4	02.1	0.0	00.0	40568.1	13.2
TOTAL	339,283.4	27.7	44,453.4	3.6	3,860.1	0.3	72,661.3	6.0

STUDY REACH #	FISH COVER TYPES					
	OVERHANG VEG.	%	UNDERCUT BANKS	%	TOTAL COVER	%
1	4873.7	03.9	5033.5	4.1	125436.9	100.0
2	72576.9	38.6	68379.9	36.5	187611.4	100.0
3	183062.8	46.2	155704.3	39.3	396356.9	100.0
4	64389.6	31.2	45790.2	22.2	206493.9	100.0
5	101946.9	33.2	61371.3	20.0	307488.2	100.0
TOTAL	426,849.9	34.9	336,279.2	27.6	1,223,387.3	100.0

TABLE 14

HABITAT SUITABILITY INDICES AND AVAILABLE HABITAT UNITS FOR JUVENILE CHINOOK SALMON IN THE KENAI RIVER MAINSTEM

TOTAL HABITAT UNITS (HU'S) FOR THE KENAI RIVER MAINSTEM

1,482,790 HU'S

COVER TYPE STRUCTURE OR USE	WATER- FRONTAGE (MILES) (FEET)		TOTAL AREA AFFECTED (ACRES) (FT²)		MEAN HSP'S	HABITAT UNITS (HU'S)
UNDEVELOPED WATERFRONTAGE						
IDEAL REARING	15.1	79,483.0	10.9	476,898.0	0.77	367,211.5
VEGETATED UNDEVELOPED	19.4	102,606.4	14.1	615,638.4	0.30	184,691.5
VEGETATED SLIGHTLY DEGRADED	79.8	421,413.6	58.1	2,528,481.6	0.26	657,405.2
HEAVILY DEGRADED	7.0	36,827.7	5.1	220,966.2	0.20	44,193.2
GRAVEL NON ERODING	5.3	27,805.5	3.8	166,833.0	0.15	25,025.0
EROSIONAL GRAVEL BANK	27.5	145,639.0	20.1	873,834.0	0.15	131,075.1
SUBTOTAL	154.1	813,775.2	112.1	4,882,651.2	N/A	1,409,601.5
DEVELOPED WATERFRONTAGE						
BOAT LAUNCHES	0.5	2,391.0	0.3	14,346.0	0.17	2,438.8
DOCKS, DECKS & STRUCTURES	2.0	10,378.0	1.4	62,268.0	0.28	17,435.0
BANK PROTECTION MEASURES	4.3	22,757.0	3.1	136,542.0	0.17	23,212.1
BULKHEADS	1.5	7,806.0	1.1	46,836.0	0.14	6,557.0
JETTY'S	0.2	1,152	0.2	6,912.0	0.14	967.7
OTHER DEV.	3.6	18,815.0	2.6	112,890.0	0.20	22,578.0
SUBTOTAL	12.0	63,299.0	8.7	379,794.0	N/A	73,188.6
TOTALS	166.1	877,074.2	120.8	5,262,445.0	N/A	1,482,790.1

TABLE 15

**HABITAT SUITABILITY INDICES AND AVAILABLE HABITAT UNITS
FOR JUVENILE CHINOOK SALMON IN THE KENAI RIVER MAINSTEM**

**TOTAL HABITAT UNITS (HU'S)
FOR THE KENAI RIVER MAINSTEM
WITHOUT STRUCTURES OR TRAMPLING**

1,523,144 HU'S

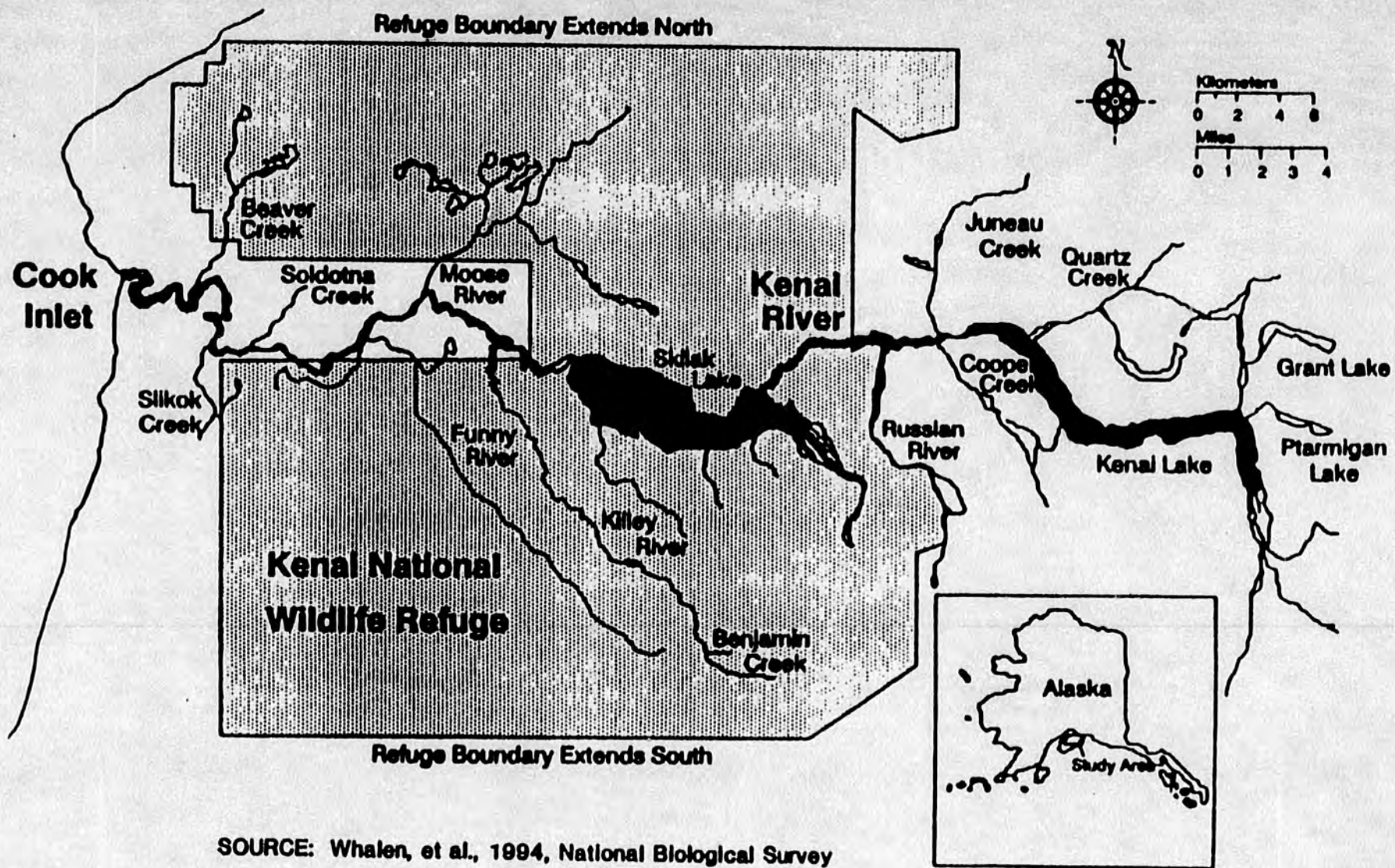
COVER TYPE STRUCTURE OR USE	WATER- FRONTAGE		TOTAL AREA AFFECTED		MEAN HSI'S	HABITAT UNITS (HU'S)
	(MILES)	(FEET)	(ACRES)	(FT²)		
UNDEVELOPED WATERFRONTAGE						
IDEAL REARING	15.3	80,779.0	11.1	484,674.0	0.77	373,199.0
VEGETATED UNDEVELOPED	26.6	106,309.0	19.4	843,234.6	0.30	252,970.4
VEGETATED SLIGHTLY DEGRADED	87.1	459,941.6	63.4	2,759,649.6	0.26	717,508.9
NATURALLY DEGRADED	2.0	10,776.1	1.5	64,656.6	0.20	12,931.3
GRAVEL NON ERODING	6.8	35,840.5	4.9	215,043.0	0.15	32,256.5
EROSIONAL GRAVEL BANK	28.3	149,198.0	20.6	895,188.0	0.15	134,278.2
TOTAL W/O STRUCTURES OR TRAMPLING	166.1	877,074.2	120.9	5,262,445.8	N/A	1,523,144.3
TOTAL WITH STRUCTURES	166.1	877,074.2	120.8	5,262,445.8	N/A	1,482,790.0
TOTAL HABITAT UNITS LOST (-) GAINED (+)						- 40,354.0

APPENDIX B

FIGURES

Figure 1

KENAI RIVER LOCATION MAP

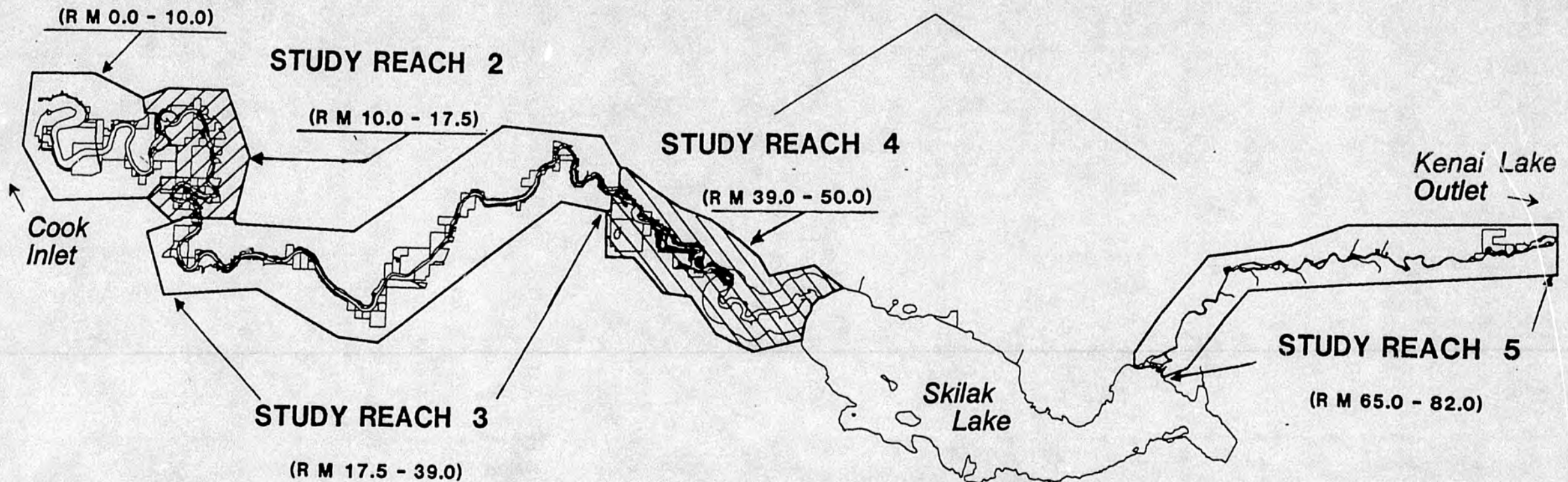


SOURCE: Whalen, et al., 1994, National Biological Survey

Figure 2 Kenai River 309 Project Study Area Boundary

STUDY REACH 1

(One-Half Mile Corridor Adjacent To Kenai River Mainstem)

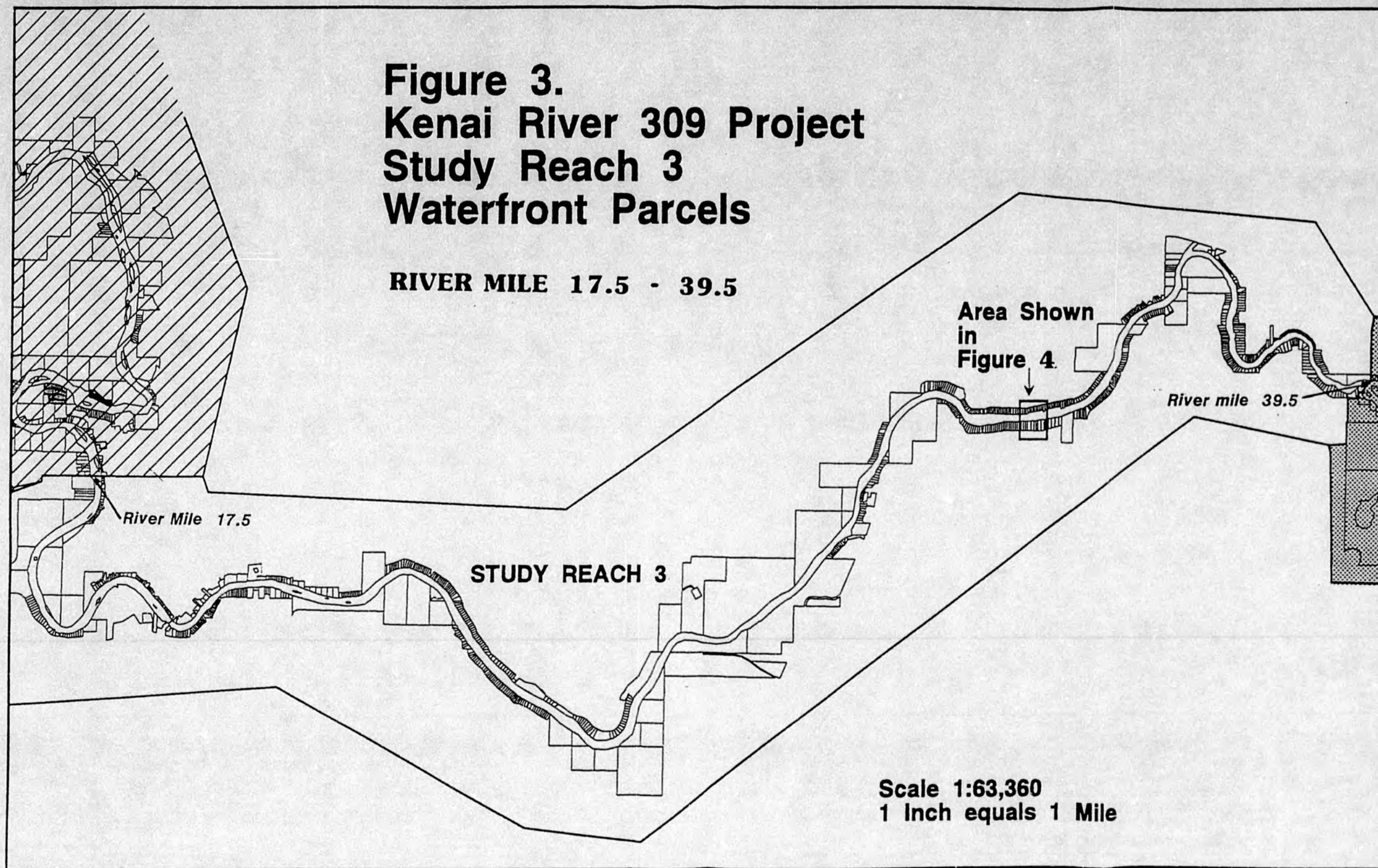


Scale 1:220,000
1 Inch equals 3.5 Miles

(R M) - RIVER MILE

**Figure 3.
Kenai River 309 Project
Study Reach 3
Waterfront Parcels**

RIVER MILE 17.5 - 39.5



**Scale 1:63,360
1 Inch equals 1 Mile**

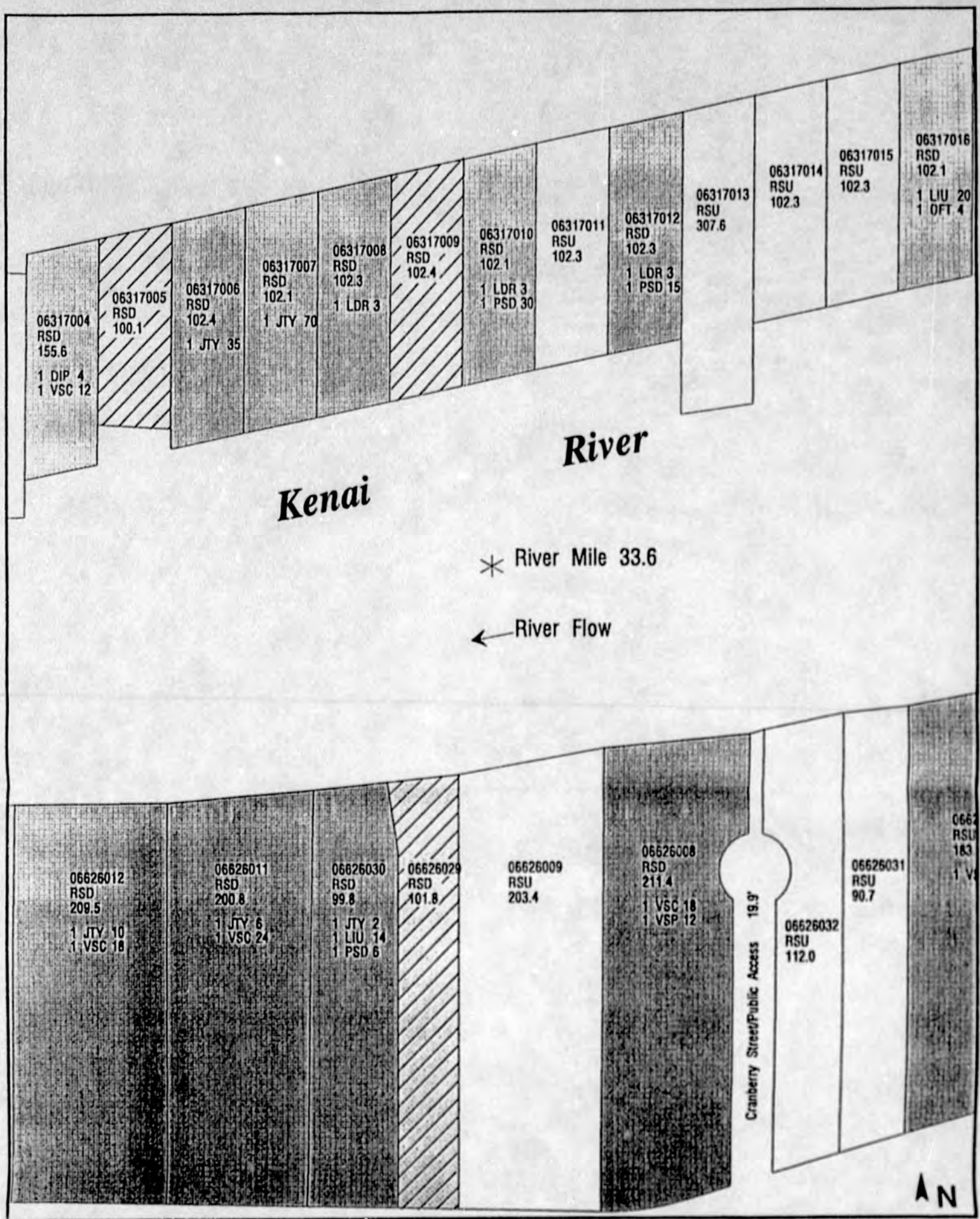


Figure 4. Kenai Riverfront Property Development



Undeveloped Parcel



Developed Parcel With Altered Waterfrontage



Developed Parcel With Unaltered Waterfrontage

Taxid = 06626012
Ownership = RSD
Waterfront Length = 209.5

Structures-Number,Type,Length = 1 JTY 10
Structures-Number,Type,Length = 1 VSC 18

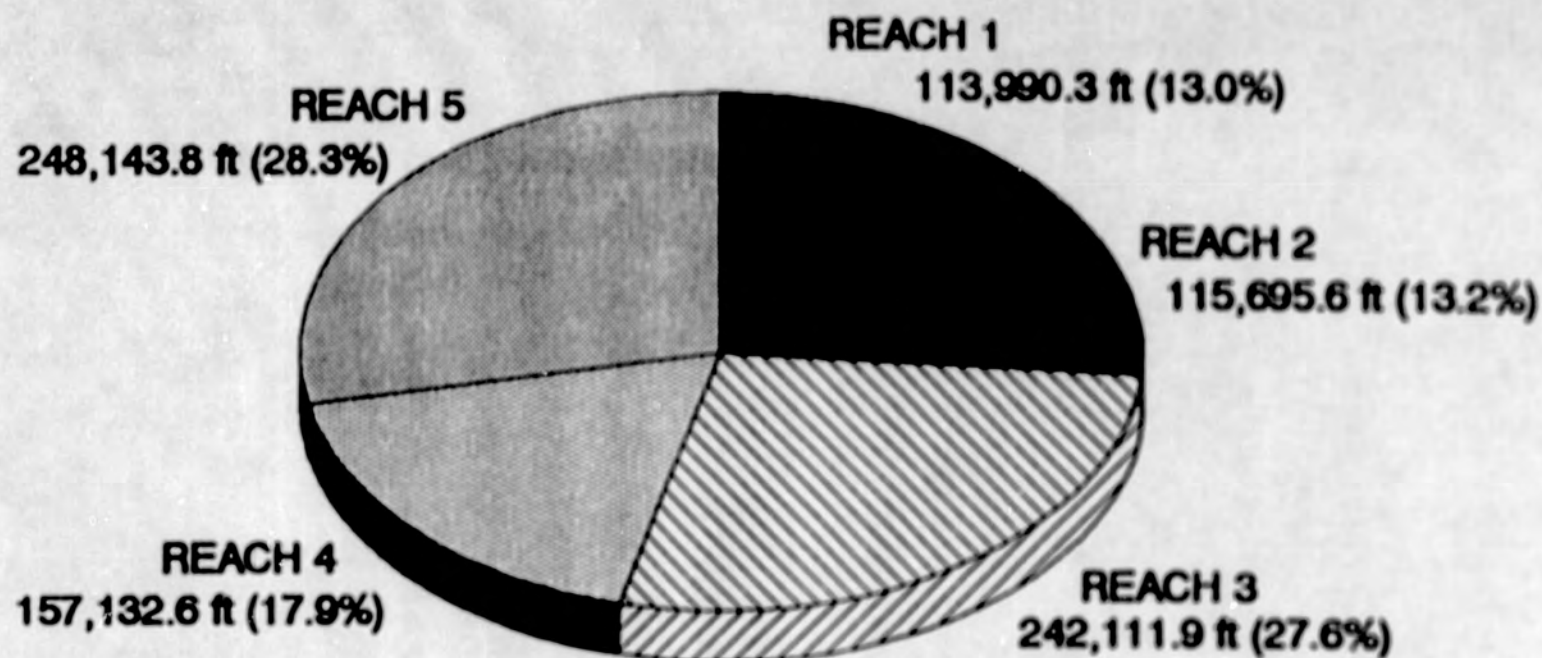
ALL LENGTHS ARE IN FEET.

See Table 1 for definition of structure type abbreviations.

See Table 2 for land ownership code definitions.

Note: Total structure type lengths do not necessarily equal total waterfront length for each parcel.

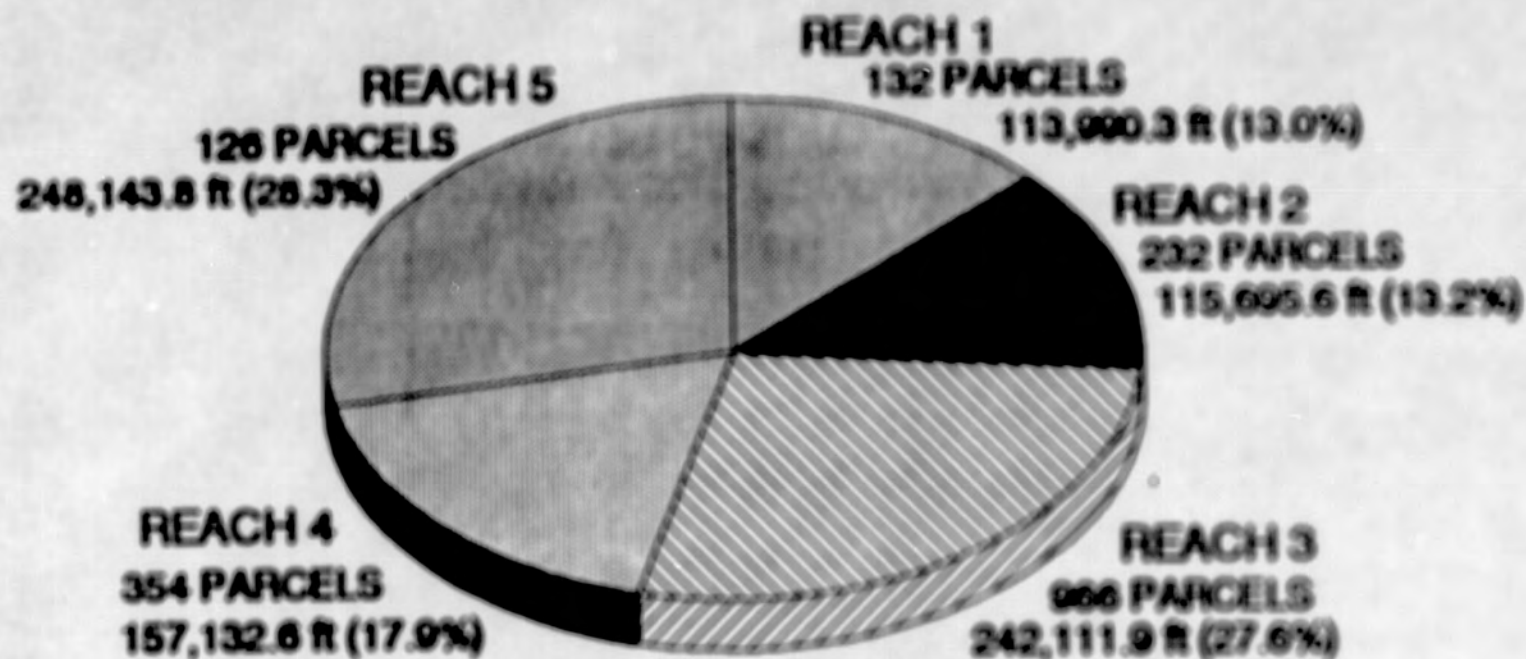
**FIG. 5 WATER FRONTAGES ON THE KENAI RIVER
LENGTHS/PERCENTAGES OF WATER FRONTAGE BY REACH**



TOTAL = 877,074.2 ft

% = PERCENTAGE OF TOTAL WATER FRONTAGE FOR THE ENTIRE RIVER MAINSTEM

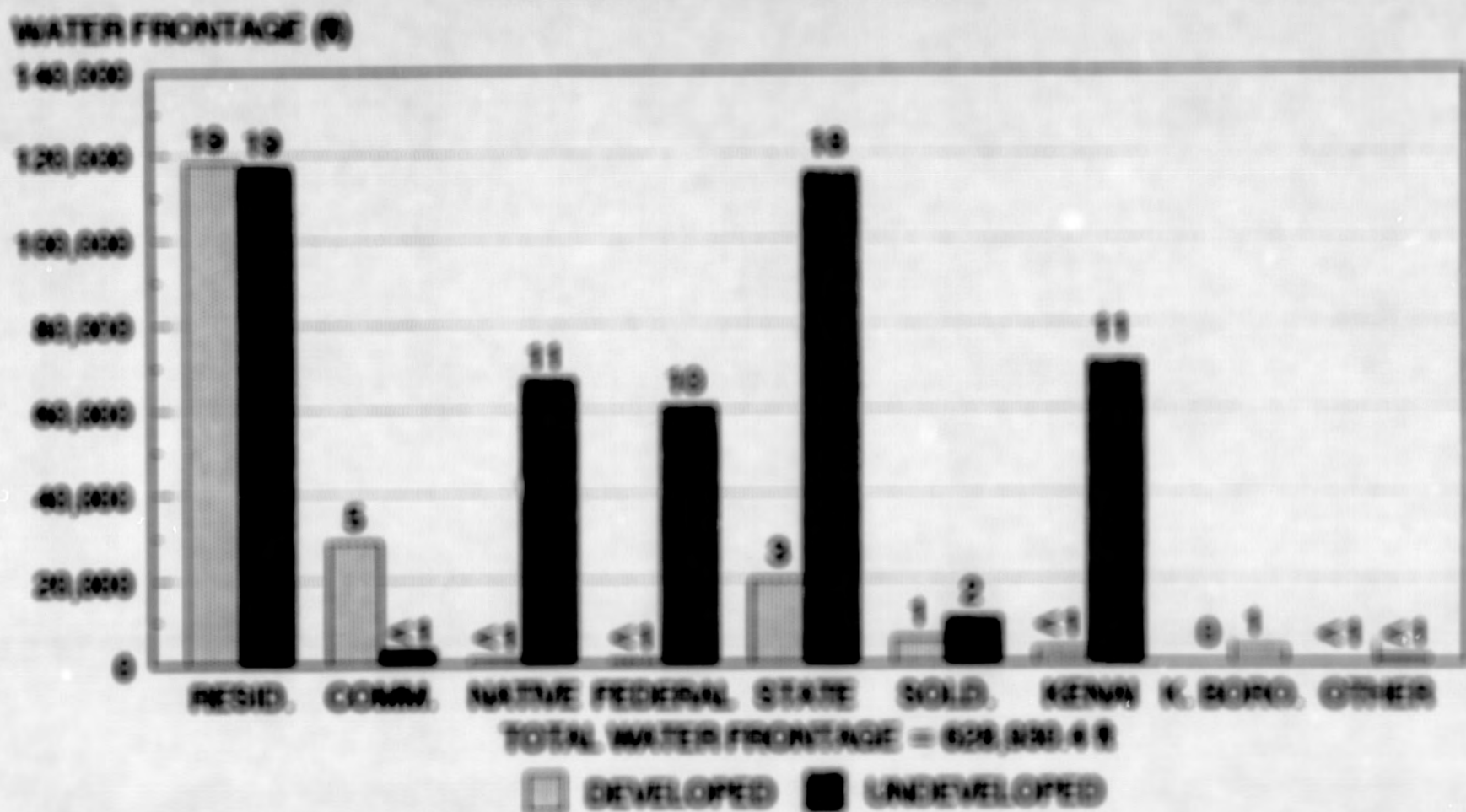
**FIG. 6 KENAI RIVER OWNERSHIP BY PARCEL
PARCELS/PERCENTAGE OF WATER FRONTAGE BY REACH**



TOTAL PARCELS = 1,810
TOTAL WATER FRONTAGE = 877,074.2 ft

% = PERCENTAGE OF TOTAL WATER FRONTAGE FOR THE ENTIRE RIVER MAINSTEM

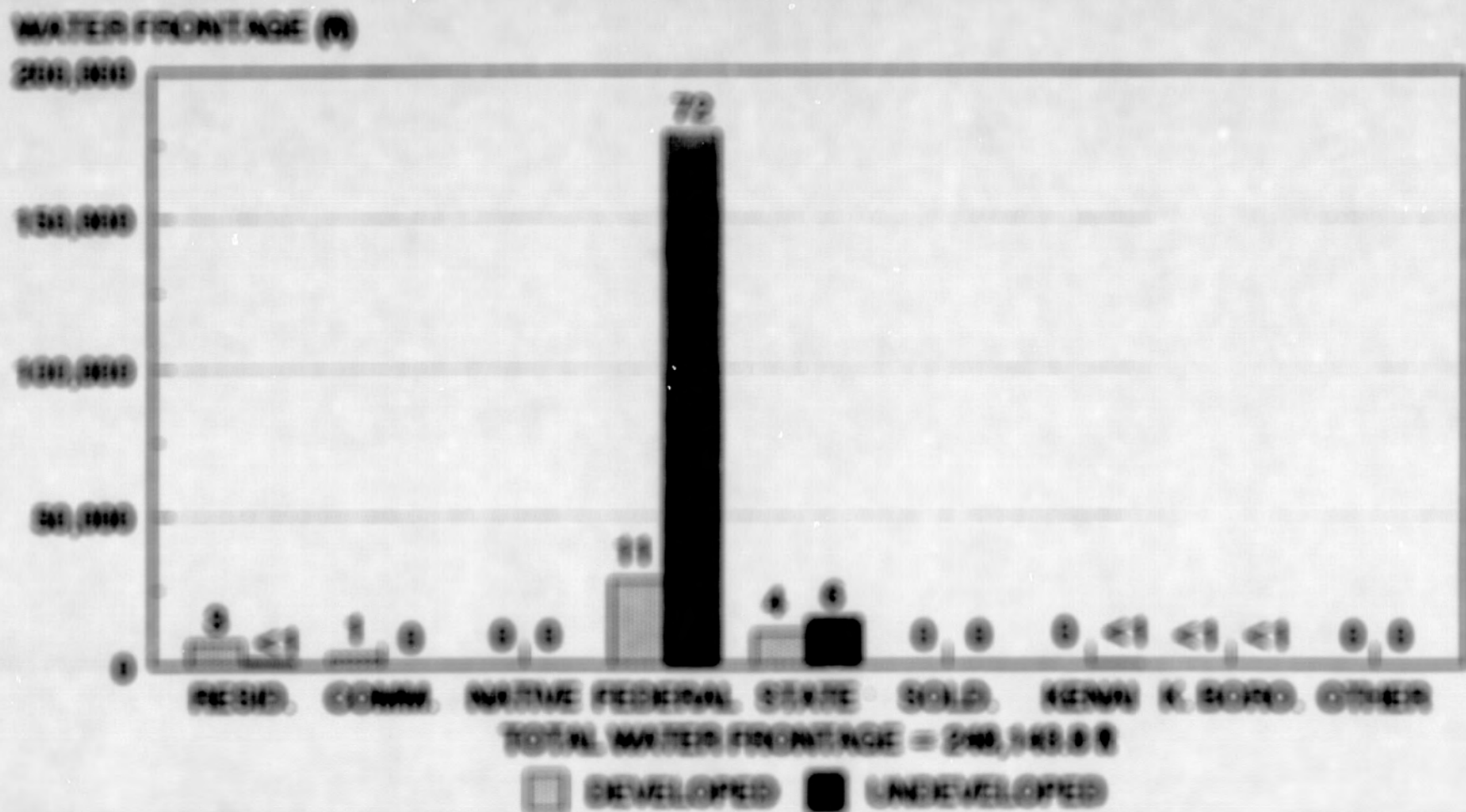
**FIG. 7 KENAI RIVER OWNERSHIP CATEGORIES
REACHES 1-4 COMBINED**



NUMBERS ABOVE BARS REFLECT % OF TOTAL WAINSTEIN WATER FRONTAGE

WAINSTEIN, 1999

FIG. 8 KENAI RIVER OWNERSHIP CATEGORIES REACH 5



NUMBERS ABOVE BARS REFLECT % OF TOTAL WATERSHED WATER FRONTAGE

VERIFIED DATA, 1999

FIG. 9 KENAI RIVER OWNERSHIP CATEGORIES
ALL REACHES COMBINED

