

**THE KENAI NATIONAL
WILDLIFE REFUGE:
ECONOMIC IMPORTANCE, 2004**

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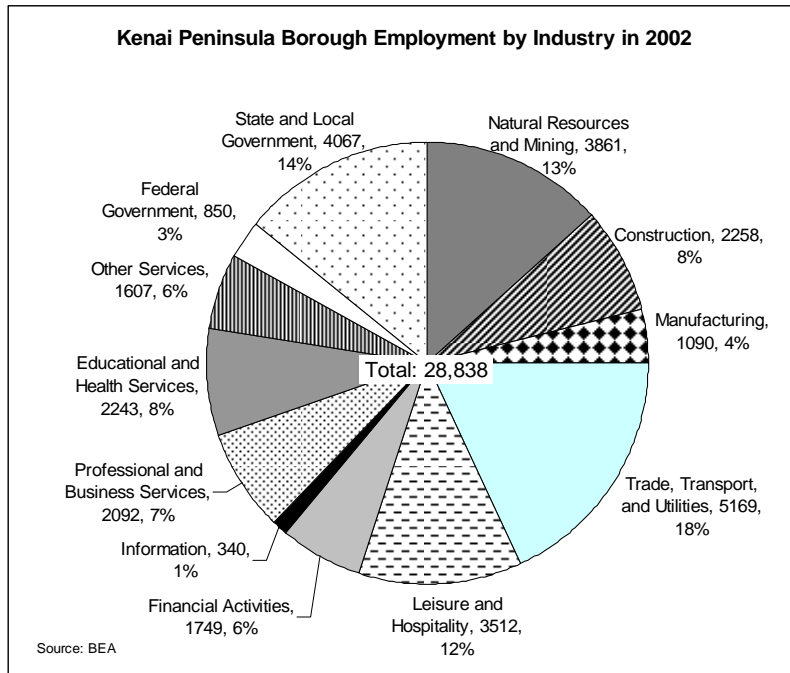
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ECONOMY OF THE KENAI PENINSULA

The Kenai National Wildlife Refuge is located in South Central Alaska within the Kenai Peninsula Borough. The Borough, with a population of 51 thousand (2002), is connected by road to the largest metropolitan region in the state with a population of 333 thousand (2002)- [Anchorage and Mat-Su].

The main private sector industries supporting the economy of the Kenai Peninsula Borough—commercial fishing and processing, tourism, and petroleum production and processing—all depend on the region’s natural resources. These sectors account for about 30 percent of the 29 thousand jobs in the Borough. Jobs in commercial fish harvesting are relatively constant from year to year but the harvest and the value of the harvest are quite variable, causing processing employment to vary. Petroleum related employment is relatively stable. Although Cook Inlet oil production has been declining for many years, production of natural gas continues to increase slowly and the natural gas level manufacturers sector is an important and stable source of high paying jobs. Tourist related employment has been growing as the number of tourist visitors to the Borough has increased.



Most of the other jobs in the Borough are dependent either upon state government spending supported by oil income or on federal dollars flowing into the Borough. State government directly provides many services to Borough residents, helps fund local government and is the source of the annual Permanent Fund dividend. Federal dollars support a small number of federal workers, support state and local government services through a variety of grant programs, bring construction dollars into the Borough, and provide a variety of income transfers to households

including retirement benefits, Medicaid, social security, Medicare, unemployment insurance, welfare, veterans’ benefits, and food stamps.

Finally there is a net inflow of income into the Borough from residents who work in other parts of Alaska, most often either in the oil fields on Alaska’s North Slope or in commercial fisheries in other parts of the state. This inflow of income more than compensates for the income earned but taken out of the Borough by non-local residents who work in commercial fishing and tourism (although the number of these non-resident workers probably exceeds that of residents working outside the Borough).

The Kenai NWR in the Kenai Peninsula Borough Economy

The Kenai National Wildlife Refuge contributes to the borough economy primarily through the tourism and seafood industries. The refuge's lakes, mountains and forests are home to abundant animals, birds, and fish. They provide sport fishing and hunting opportunities as well as a variety of non-consumptive activities such as hiking, rafting and bird watching. The refuge also contains breeding and rearing habitat for substantial salmon populations that support sport fishing both on and off the refuge as well as commercial fishing in Cook Inlet.

Assessing what portion of the impact of any activity is directly attributable to the refuge is difficult. A sport angler catching salmon in Hidden Lake is enjoying a resource that depended not only on refuge habitat, but also on several years of marine habitat in the Gulf of Alaska. It's not possible to say what fraction of the dollars the angler spends in the refuge is attributable to refuge resources and what fraction to marine resources. Likewise, commercial fishers in Cook Inlet are not fishing on the refuge, but many of the fish they catch are dependent on refuge resources for spawning and rearing habitat.

Since there is no 'correct' allocation of economic activities that depend on both refuge and off refuge resources, we define lower and upper bounds on the economic activities we analyze. **On-site** activities are those that take place on refuge land. We can estimate these by looking at the activities of refuge visitors. They provide a lower bound, since they don't include any of the economic activities that refuge land, water and habitat make possible beyond refuge boundaries.

Refuge-dependent activities include off refuge activities that wouldn't be possible without refuge resources as well as all on-site activities. For example, we include the value of fish caught outside refuge boundaries, if those fish spend a significant part of their lives within the refuge. This is an upper bound, since we include the full value of those fish, but some of the value is the result of the off refuge resources. (Some off refuge sport hunting trips might also be attributed to the refuge, but no data is available for that attribution.)

Changes from the Previous Report

Three changes in the significance and impact of the refuge emerge in comparing this report with ISER's previous estimates published in The Kenai National Wildlife Refuge: Economic Importance (May, 2000). The most striking is the continued decline in the value of Cook Inlet commercial salmon fisheries. Harvest values since 2000 are among the lowest in the last 30 years. Increased competition keeps prices low enough that even years with good returns have low total harvest values. Employment generated by commercial fishing attributable to the refuge has declined by 40 percent and income by almost 70 percent.

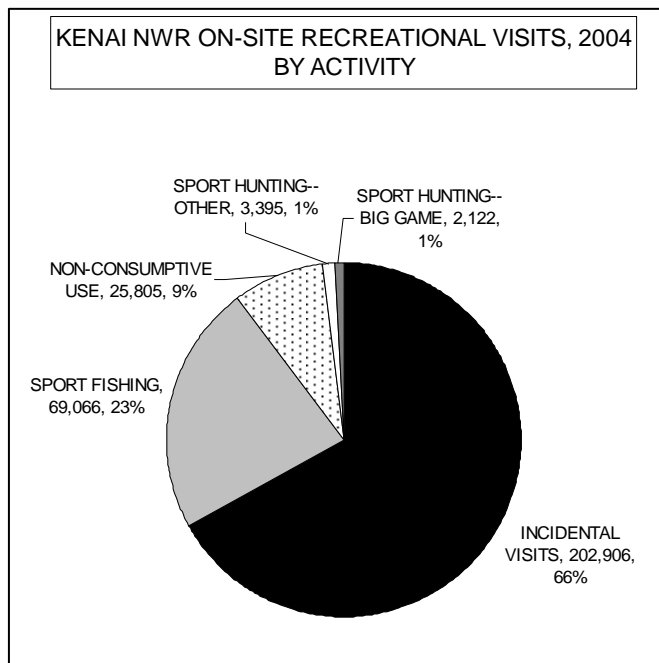
Non-consumptive recreation (e.g., boating, hiking, bird watching, photography) has grown and has, by most measures, displaced sport hunting as the second largest recreational contributor to jobs and income attributable to the refuge.

As tourism has steadily grown, both state-wide and in the Kenai Peninsula Borough, non-Alaska residents have surpassed both non-local Alaska residents and local Borough residents as the largest source for the jobs and income generated by the refuge. Five years ago the three groups were relatively similar in their importance.

RECREATIONAL VISITS

This visitation data comes primarily from refuge records, State of Alaska Department of Fish and Game reports, and surveys.

On-site Visits

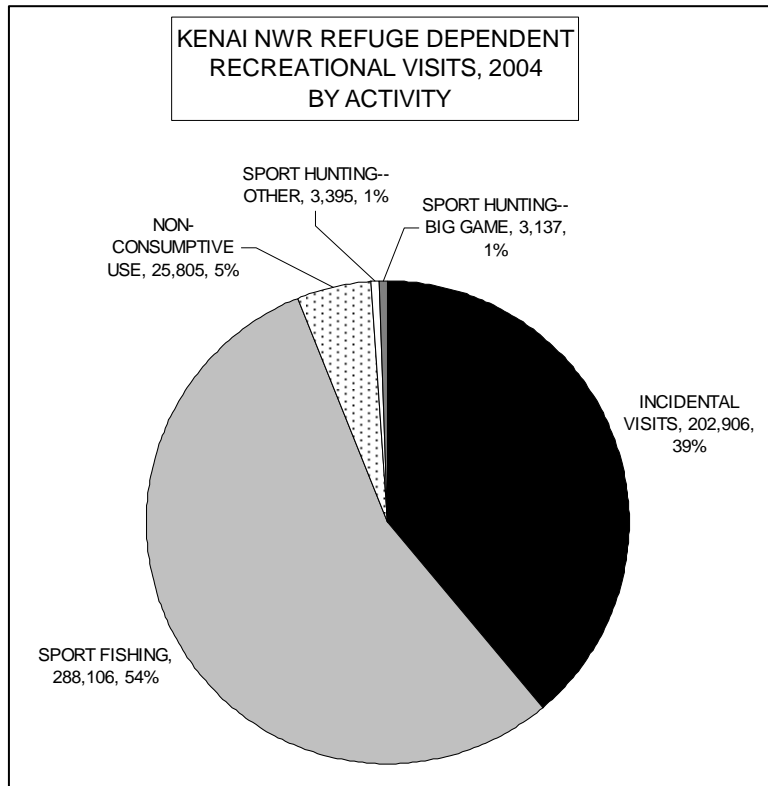


We estimate 303 thousand visits were made to the Kenai Peninsula National Wildlife Refuge in 2004 for sport fishing (69 thousand) or hunting (55 thousand), non-consumptive activities (26 thousand), or incidental visits (203 thousand). The majority of these visits originated outside of the Borough, either in South Central Alaska (140 thousand) or outside the state (81 thousand). Borough residents accounted for 82 thousand visits.

The majority of sport fishing visits targeted salmon on the Kenai River. A small portion (3 thousand) of sport fishing visits involved use of a guide. The sport hunting visits primarily targeted moose and waterfowl. Few of these were guided. Non-consumptive use included river

rafting, canoeing, photography, hiking, and biking. About one-third of these were guided. Incidental visits were stops made within the refuge while the visitor was making a trip for another purpose. These included visits to interpretive sites and nature observation.

Refuge-dependent Visits



The habitat provided by the Kenai National Wildlife Refuge provides support to wildlife that does not live on the refuge as well as wildlife that spends only a part of its life on the refuge. This habitat is important for the sport fisheries in fresh water to the west of the refuge, particularly the Kenai River salmon fishery, and the salmon and halibut fisheries in the salt water of Cook Inlet.

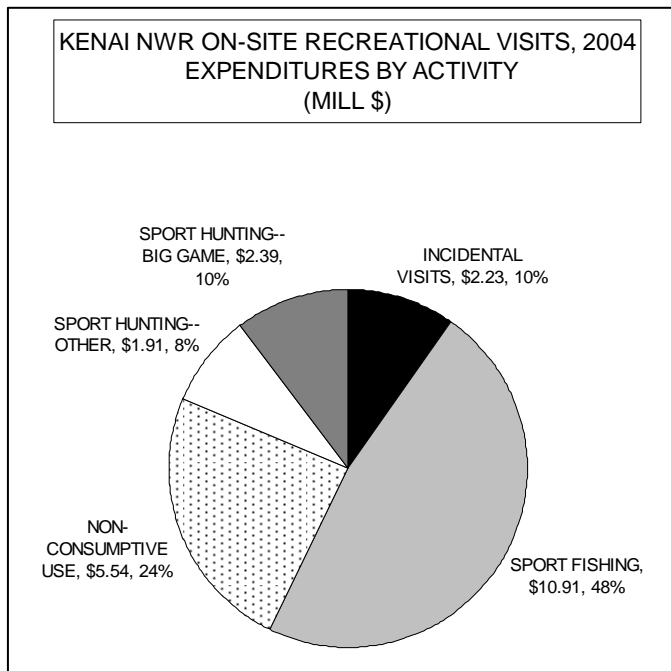
We include sport fishing trips to the lower Kenai River, about half of the other off refuge fresh water trips on the Peninsula, and about 15 percent of the salt water trips as refuge-dependent fishing. Adding these 219 thousand trips to on-site fishing trips brings the refuge-dependent sport fishing trip total to

288 thousand. (Refuge-dependent sport fishing trips are about 55 percent of all the sport fishing trips on the Kenai Peninsula.) Total visits to the Kenai Peninsula Borough for all recreational purposes attributable to the refuge increases to 523 thousand.

EXPENDITURES

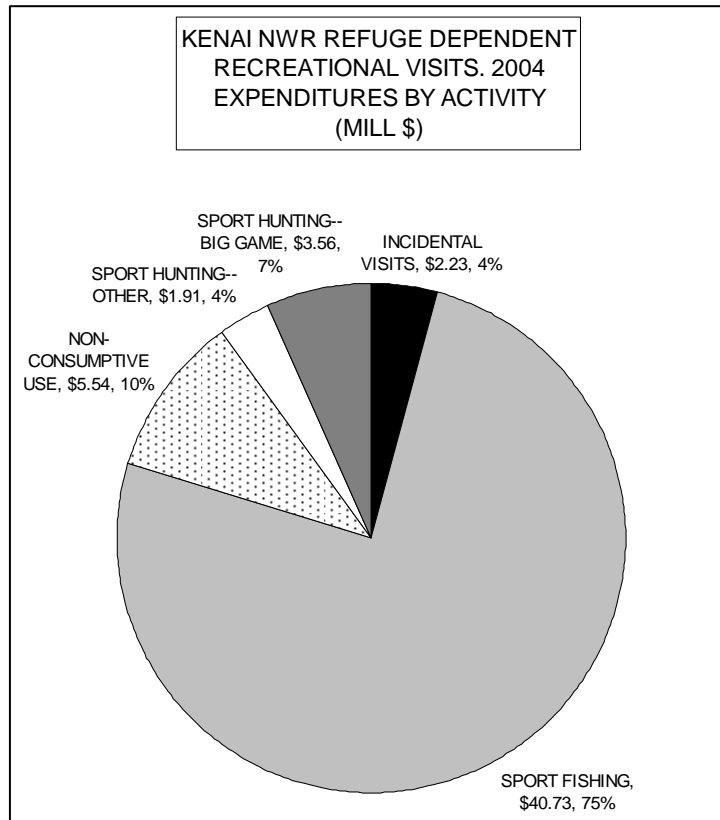
We calculate visitor expenditures for both on-site and refuge-dependent expenditures. These expenditures include only trip related spending by visitors within the Borough. We excluded expenditures related to these visits that are made outside the Borough, outside Alaska, or on travel to Alaska. We also excluded the costs of sports equipment and vehicles to participate in these activities. Only a nominal expenditure is associated with each incidental visit because the primary purpose of trips including an incidental visit to the Refuge was some other activity. This expenditure data comes primarily from surveys conducted by ISER and the US Fish and Wildlife Service.

Expenditures on On-site Visits



Visitors to the Kenai National Wildlife Refuge spent about \$23 million during their sport fishing and hunting, non-consumptive use, and incidental visits. Sport fishing produced the largest share of expenditures (\$11 million), with non-consumptive use (\$5.5 million) and sport hunting (\$4.4 million) also significant. Incidental visits together accounted for the remainder of expenditures (\$2.2 million). Visitors from out of state accounted for the largest share of the total (\$10.7 million), with Alaskans who were not residents of the Kenai Peninsula Borough, mostly from South Central, and local residents spending about equal sums (\$6 million each).

Expenditures on Refuge-dependent Visits



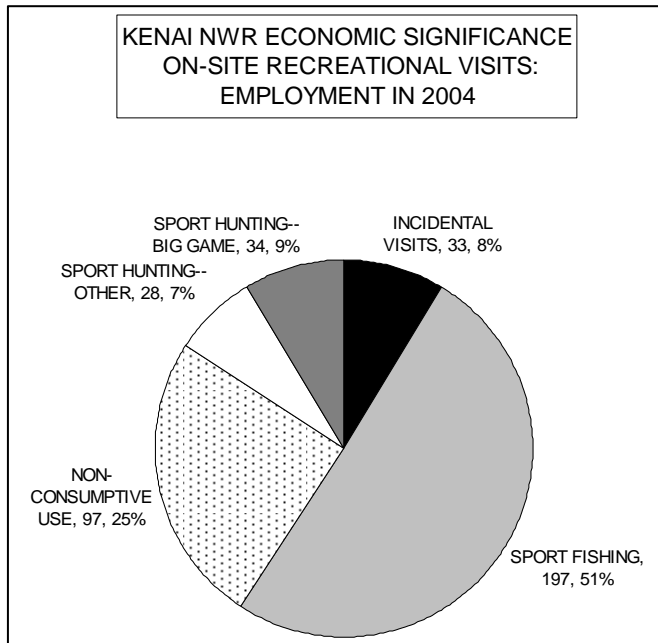
In addition to the \$23 million spent on trips to the Kenai National Wildlife Refuge, \$30 million was spent on sport fishing trips and about \$1 million on big game hunting trips to sites not on the refuge but where the target species was dependent upon the habitat provided by the refuge. Fishing sites included freshwater sites along the lower part of the Kenai River and elsewhere as well as saltwater sites in Cook Inlet. About half of the total expenditures of \$54 million spent during recreational trips attributable to the refuge were spent by residents of other states (\$28 million), about one-quarter by local residents (\$14.2 million), and slightly less by other Alaska residents (\$11.8 million).

ECONOMIC SIGNIFICANCE OF RECREATIONAL VISITS

The economic significance of the refuge is measured by the number of jobs and the payroll that visitor spending generates within the Borough economy. Visitor spending creates jobs directly in the service, trade, and transportation sectors of the economy, and through the multiplier effect in most other industries as well. We can measure the economic significance both of on-site and refuge-dependent visitor spending.

These and the following estimates of economic significance and economic impact were produced using the Alaska Input-Output Model, developed at ISER for this purpose. This model, described in detail in [The ISER Alaska Input-Output Model](#), is a representation of the industries within the Alaska economy and how they are linked together by purchases from one another. The purpose of the model is to generate the estimates of total jobs and payroll produced by an infusion of new spending into the economy such as that represented by refuge visitor spending.

Economic Significance of On-site Spending

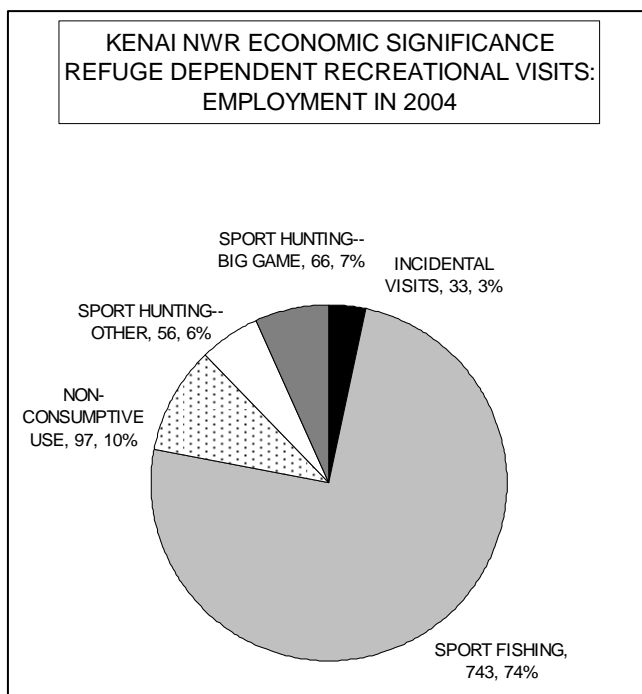


The \$23 million in expenditures by recreational visitors to the refuge purchased goods and services in the tourist industry, primarily in retail trade, services such as lodging, restaurants, and guiding, and transportation. These businesses generated payroll and purchase supplies from a wide variety of other businesses within the Borough including other tourist businesses as well as construction, utilities, business services, financial institutions, etc. As this money circulated in the economy additional jobs and payroll were produced through a process known as the economic multiplier. We estimate that the economic significance of the \$23 million in expenditures was 389 jobs (annual average) and \$10 million in payroll within the Kenai Peninsula

Borough. Because of the seasonal nature of visits, the number of jobs during the summer peak was considerably higher.

Half of the jobs were due to sport fishing trips with smaller shares accounted for by visits for other purposes. Local resident spending was the source of 86 jobs, non-local resident spending accounts for 94 jobs, and non-Alaska resident spending accounted for 208 jobs.

Economic Significance of Refuge-dependent Spending



The \$54 million in expenditures by recreational visitors to the Kenai Peninsula Borough for trips dependent on the Kenai National Wildlife Refuge purchased goods and services in the tourist industry, primarily in retail trade, services such as lodging, restaurants, and guiding, and transportation. These businesses generated payroll and purchased supplies from a wide variety of other businesses within the Borough including other tourist businesses as well as construction, utilities, business services, financial institutions, etc. As this money circulated in the economy additional jobs and payroll were produced through a process known as the economic multiplier. We estimate that the economic significance of the \$54 million in expenditures was 995 jobs (annual average) and \$21.7 million in payroll

within the Kenai Peninsula Borough.

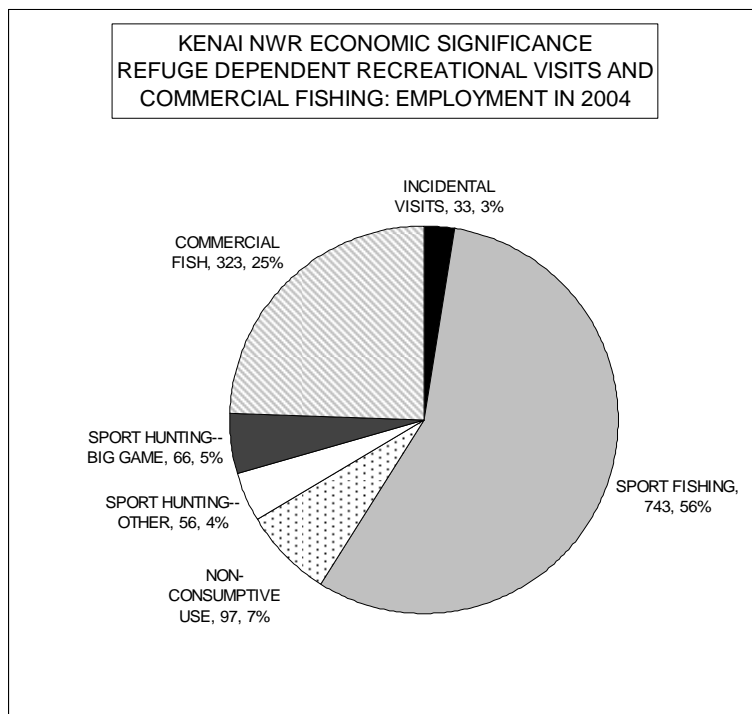
The majority of these jobs were due to sport fishing trips (743) with smaller shares accounted for by visits for other purposes. The source of these jobs was almost equally divided among local resident spending (310), non-local residents (306), and non-residents (379).

COMMERCIAL FISHERY

The annual value of the Cook Inlet commercial salmon harvest averaged about \$53 million (2002 \$) since the late 1970's. However, this average is not reflective of current harvests. In the 1980s, harvest value averaged \$79 million (2002 \$), in the 1990s, \$43 million, and from 2000 through 2003, just \$12 million. Harvesting and processing these fish historically involved about 4 thousand workers each year during the short fishing season. Because it is a highly seasonal industry the annual average employment in the industry was considerably lower than 4 thousand, and many of the workers have not been residents of the Borough. We estimate that the annual equivalent employment in this industry is about 600 workers (total workers times the portion of the year each is working in the industry), a third of whom are not residents of Alaska. The total economic impact of this industry is about 800 jobs (annual average) and \$16.5 million in payroll. About 630 of these jobs are held by Alaska residents.

This fishery is partially dependent upon the habitat provided by the Kenai National Wildlife Refuge. We estimate that about 40 percent of the fish caught in the Cook Inlet salmon fishery hatched and reared on the refuge; we consider the economic activity associated with the harvest of those fish as refuge-dependent. The economic impact of this refuge-dependent harvest (including processing) is 323 jobs (annual average) and \$6.6 million of payroll. Of this total, 252 jobs are held by residents, who receive a payroll of \$5.2 million.

TOTAL ECONOMIC SIGNIFICANCE OF THE REFUGE



The total on-site economic significance of on-site activity is the same as the economic significance of on-site recreational visits—389 jobs (annual average) and \$10 million in annual payroll. The total refuge-dependent economic significance combines the jobs generated by refuge-dependent recreational visits with those generated by the commercial fishery. This results in a total of 1,318 jobs (annual average) and an associated total payroll of \$28.3 million.

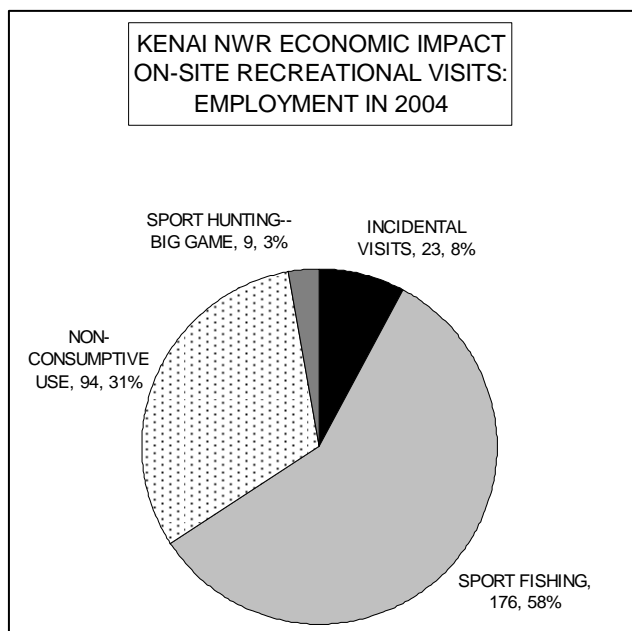
ECONOMIC IMPACT OF THE REFUGE

This section estimates the economic *impact* rather than economic *significance* of activities in and dependent on the Kenai NWR. While economic significance looks at how much economic activity can be traced to the refuge, economic impact tries to estimate how much smaller the Borough economy would be, if those activities could not take place. In some cases, if refuge activities were not available, the spending they generate would be displaced to other Kenai Borough activities, with little impact on total jobs and payroll. In other cases, the spending would occur elsewhere in Alaska or out of state. In those cases, the total Borough economy would be smaller. It is that second category of spending we use to estimate economic impact.

Recreational spending by Borough residents cannot be considered new purchasing power flowing into the regional economy from the existence of the Kenai NWR. We assume residents would spend their recreation dollars on other activities within the Borough if the refuge did not exist and this spending would generate local jobs in other businesses and locations. In contrast, the recreational spending of non-local Alaskans, from Anchorage and elsewhere, as well as that of non-Alaska residents, does pump new purchasing power into the Kenai economy. Without the spending of these visitors the economy would be considerably smaller. This spending is part of the economic base of the Kenai Peninsula Borough economy. Similarly since the products of the commercial fishing industry are sold outside the Borough and thus pump new money into the local economy, commercial fishing is a basic industry. Without these sales the Borough economy would be considerably smaller.

We can calculate the economic impact of the purchasing power that flows into the regional economy from non-local visitors and commercial fishing activity. This is a measure of how much economic activity these refuge activities add to the economy.

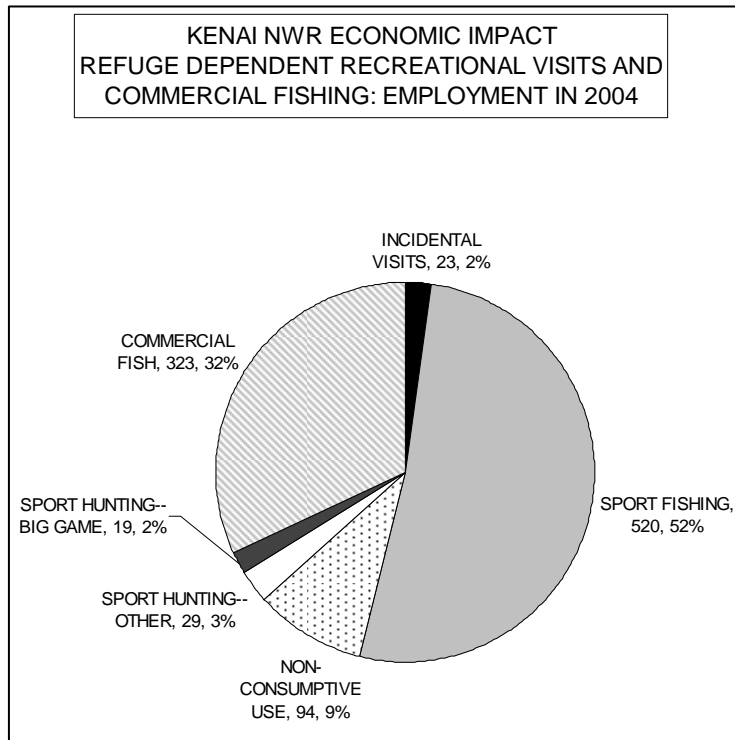
On-site Impact



On-site impact is the impact of activities taking place directly on the refuge. Of the \$23 million in expenditures by recreational visitors to the refuge, only the \$17 million of spending by visitors from outside the Borough (other Alaskans and non-Alaska residents) can be considered new money flowing into the economy of the Borough. In contrast Borough resident spending is re-circulation of money already within the economy.

The economic impact of that \$17 million in expenditures by non-local residents can also be measured in jobs and payroll. This spending added 302 jobs to the Borough economy (annual average) and payroll of \$7.7 million.

Refuge-dependent Impact



Of the \$54 million in expenditures by recreational visitors to the Borough for activities dependent upon the refuge, only the \$39.7 million of spending by visitors from outside the Borough (other Alaskans and non-Alaska residents) can be considered new money flowing into the economy of the Borough. The economic impact of the \$39.7 million in expenditures for refuge-dependent activities by non residents of the Borough added 685 jobs to the Borough economy (annual average) and payroll of \$15.1 million.

Combining this total with the economic impact of commercial fishing activity attributable to refuge habitat produces an estimate of the total economic impact in the Borough

related to the refuge. We estimate this to be 1,008 jobs (annual average) and \$21.7 million in payroll.

OTHER ASPECTS OF THE ECONOMIC IMPORTANCE OF THE REFUGE

Several other aspects of the economic importance of the Kenai National Wildlife Refuge were not quantified in this analysis but should be mentioned. The annual operating and capital budgets for administration of the refuge directly support the staff as well as purchases from suppliers and construction activity. This in turn gives rise to additional jobs and income within the Borough through the economic multiplier.

Our measures of significance and impact include only the jobs and payroll produced in the Kenai Peninsula Borough. The rest of Alaska, primarily the greater Anchorage area, experiences an economic effect in three ways.

- First, some expenditures related to recreational trips and commercial fishing in the Kenai Peninsula Borough are made in Anchorage. Examples would be fishing tackle or supplies for a commercial fishing trip.
- Second, some of the workers in the tourist and commercial fishing industries in the Borough live in Anchorage. A portion of the payroll of these workers is spent in Anchorage, generating jobs and income in that community.
- Finally, as money circulates in the Kenai Peninsula Borough economy through the multiplier effect, it gradually leaks out to the rest of the state, primarily Anchorage, as

Kenai businesses and residents make purchases from Anchorage businesses. The money that comes to Anchorage this way stimulates job and income creation in the Anchorage economy.

Some commercial activities associated with the refuge, like petroleum production, are not included in the analysis.

ECONOMIC VALUE

We have not calculated the total economic value of the refuge in this study. This is a measure of the annual amount of money that people would be willing to pay to maintain the existence of the refuge or any of its component parts or characteristics for all purposes including recreation, habitat for commercial fish resources, as well as non-use values.

Our measures of expenditures associated with refuge recreational activities provide a lower bound measure of the total value of the refuge for recreation since they reflect the amount people actually paid to engage in those activities. Some people probably would have been willing to pay more than they actually did in order to engage in those recreational activities. The total economic value of the refuge for recreational purposes would be the sum of actual expenditures and this additional willingness to pay. (This additional willingness to pay is also known as the net economic value for recreational purposes.)

Furthermore, some of the economic value of the refuge is represented by monetary value of the opportunities foregone by Borough residents who have chosen to live close to the refuge. There is evidence that some Borough residents have chosen to accept the somewhat limited employment and income opportunities offered in the Borough in exchange for the fishing, hunting, and other outdoor activities readily available there. (A significant share of survey respondents indicated that recreational fishing opportunities were an important factor in choosing to live in the Borough. At the same time per capita income is about 82 percent of Anchorage and the unemployment rate is more than double that of Anchorage.) The higher income these people could have earned had they chosen to live elsewhere is a rough measure of the economic value of those amenities, of which the refuge is an important component.

The total economic value of the refuge would include the value of a portion of the commercial fish harvest, the market value of which has averaged \$58 million over the last 20 years. Non-use values including option and existence value are also a part of the economic value of the refuge.

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GRAPHIC AND TABULAR APPENDICES

APPENDIX A. KENAI PENINSULA BOROUGH ECONOMY

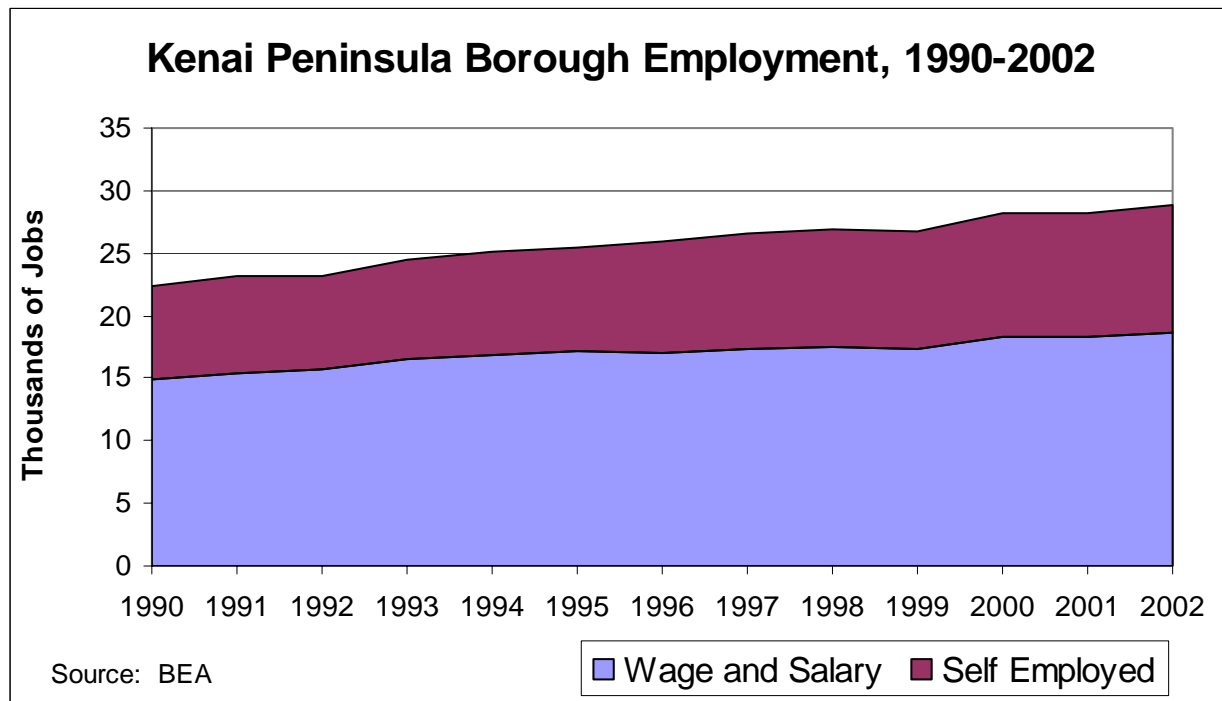
1. Total employment increased at an annual average rate of 5.5% during the 1980's, decreased to an annual growth rate of 2.3% during the 1990, and slowed to an annual growth rate of 1.1% since 2000. A large share of total employment is the self employed. This is because of the importance of fish harvesting and tourism in the economy.
2. Natural resources and mining, trade, transport, and utilities, and leisure and hospitality comprise about 43 percent of all jobs. About 23 percent of all jobs are in construction, education and health services, and professional and business services. Government employment makes up about 17 percent of the total.
3. During the 1990's employment growth was fastest in the following supersectors: *construction, leisure and hospitality, information, education and health services, and other services*. Since 2000 employment growth has been the fastest in the following supersectors: *financial activities, information, and education and health services*. Federal employment has declined while state and local government continue to increase, although at a slightly slower rate than in the 90's.
4. Real personal income increased at an annual average rate of 6.0% during the 1980's, and slowed to an annual growth rate of 2.1% during the 1990's. Since this is less than the rate of population increase, per capita real personal income declined in the 1990's, but jumped between 1999 and 2000 when population growth remained flat while income from self-employment and residents working elsewhere increased substantially. A relatively flat population growth combined with mixed income growth between 2000 and 2002 sustained the jump. A growing share of personal income is from investment income and government transfers; labor income declined slightly for 2001 and 2002.
5. Large shares of labor income come from self employed workers (including fishermen and many people working in the tourist sector) and from wages and self employment income brought into the borough by residents working elsewhere (primarily fishermen and North Slope oil workers). In 2002, self employed income was 21 percent of net earnings and income from residents working elsewhere was 9.5 percent of net earnings.
6. The share of labor income going to government, *natural resources and mining, construction, and manufacturing* is higher than the employment share because wages in these industries are higher than average. Likewise, the labor income share going to services, *financial activities, leisure and hospitality, and trade, transport, and utilities* is smaller than the employment share because wages are lower than average.
7. Real per capita income has fluctuated due both to economic cycles and the value of fish harvests.
8. Seasonality is an important feature of the economy. Wage and salary employment is much higher in the summer than in the winter because manufacturing (fish processing), construction, transportation, trade, accommodation and food services, and arts, entertainment, and recreation are concentrated in the summer.

9. In these seasonal industries employment in the summer is 63 percent higher than in the winter. Since a large share of the self employed work in the fish harvesting and tourist industries, we can assume their work is also very seasonal.
10. Much of the economic base depends on natural resource production and is vulnerable to cycles in those sectors. Cycles in the harvest of salmon in Cook Inlet in particular contribute to fluctuations in income from year to year. Although the average value of the harvest over the last 26 years has been \$53 million (2002 \$), the range has been from a high of \$199 million to a low of \$9 million.
11. The value of the Cook Inlet commercial sockeye fishery—one of the mainstays of the Kenai Peninsula commercial fishing industry—has fallen by more than half since the mid-1990s, partly as a result of lower commercial catches, but mainly because of a decline in prices due to competition from farmed salmon. With the decline in value of the fishery has come a decline in participation, as the number of drift gillnet permits fished fell by 20 percent since the 1990s (when the level was already far below the mid-1980s peak).
12. Employment by industry since 2000 is difficult to compare with earlier years. The federal government has changed its industrial classification system in response to changes in the structure of the national economy. The old system (the SIC or standard Industrial Code) was appropriate for the manufacturing-dominated economy of the 1930s, when it was developed. The new system (NAICS, or North American Industrial Classification System) is better able to classify the many service and high-technology industries that have developed since that time. Although this means that comparisons across the two systems are difficult (and sometimes not possible), in the long run, the new system will better describe today's economy.

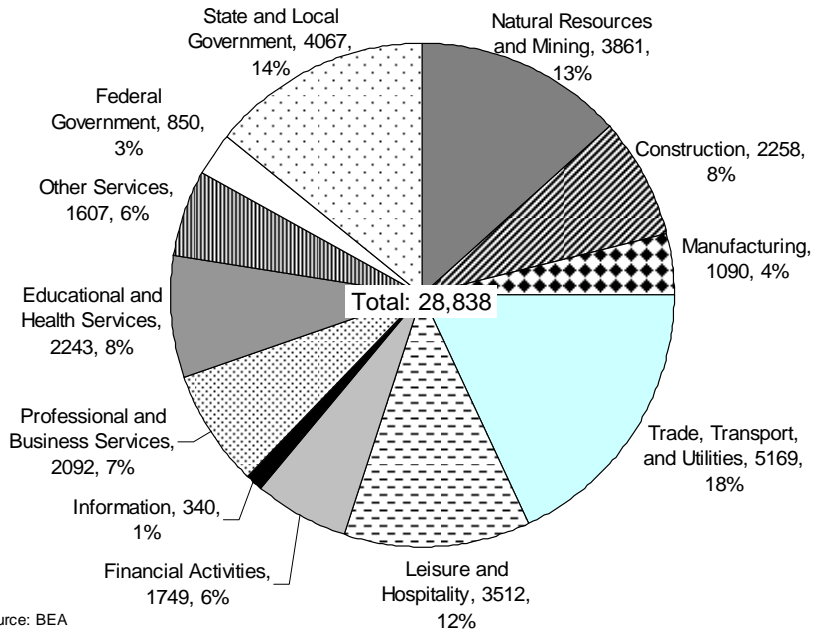
Kenai Peninsula Borough Total Employment

NAICS Classification					Annual Growth Rate		
	1980	1990	2000	2002	80-90	90-00	00-02
Total employment	13123	22399	28193	28838	5.5%	2.3%	1.1%
Natural Resources and Mining	1985	3131	3817	3861	4.7%	2.0%	0.6%
Construction	1024	1525	2190	2258	4.1%	3.7%	1.5%
Manufacturing	1324	1530	1237	1090	1.5%	-2.1%	-6.1%
Trade, Transport and Utilities	2023	3837	5033	5169	6.6%	2.8%	1.3%
Leisure and Hospitality	1041	2438	3428	3512	8.9%	3.5%	1.2%
Financial Activities	1123	1053	1412	1749	-0.6%	3.0%	11.3%
Information	84	209	285	340	9.5%	3.2%	9.2%
Professional and Business Services	1346	2114	2358	2092	4.6%	1.1%	-5.8%
Education and Health Services	610	1516	2069	2243	9.5%	3.2%	4.1%
Other Services	463	1150	1570	1607	9.5%	3.2%	1.2%
Federal Government	413	776	889	850	6.5%	1.4%	-2.2%
State and Local Government	1687	3120	3905	4067	6.3%	2.3%	2.1%

NAICS employment categories before 2001 estimated by author

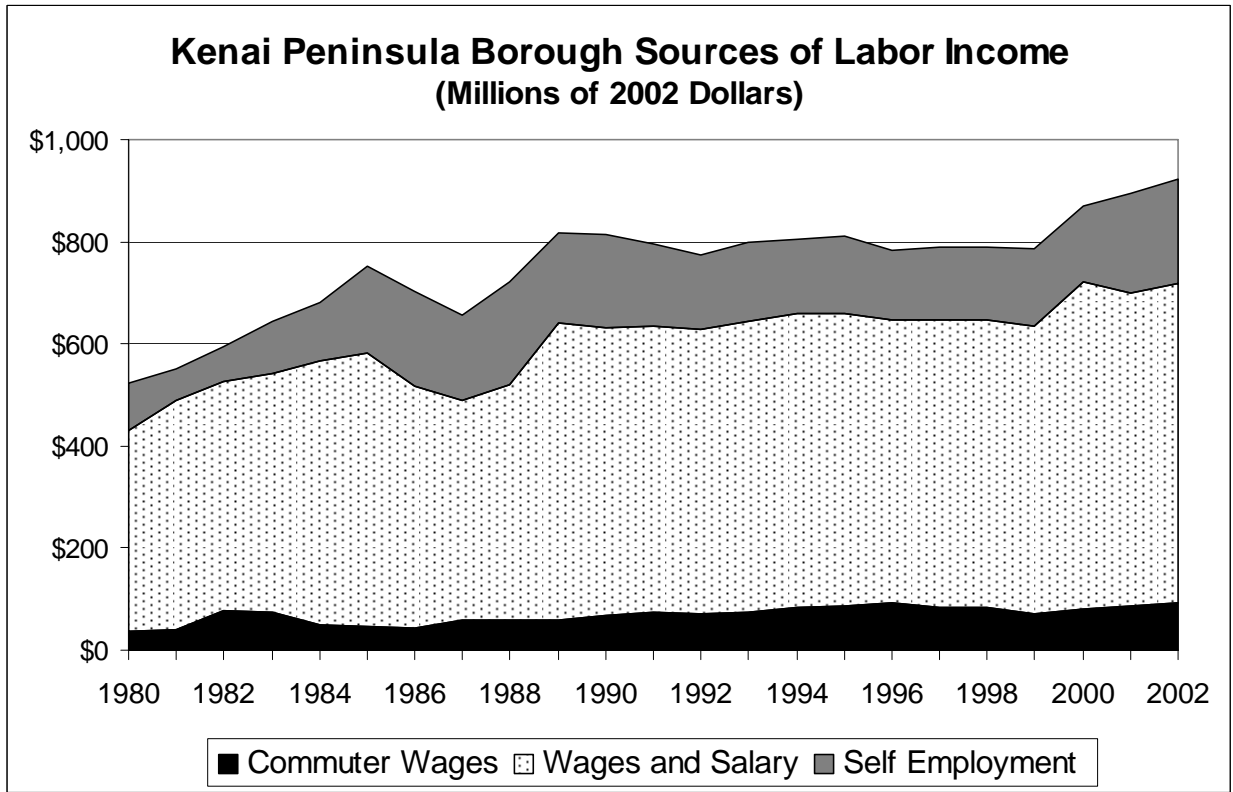
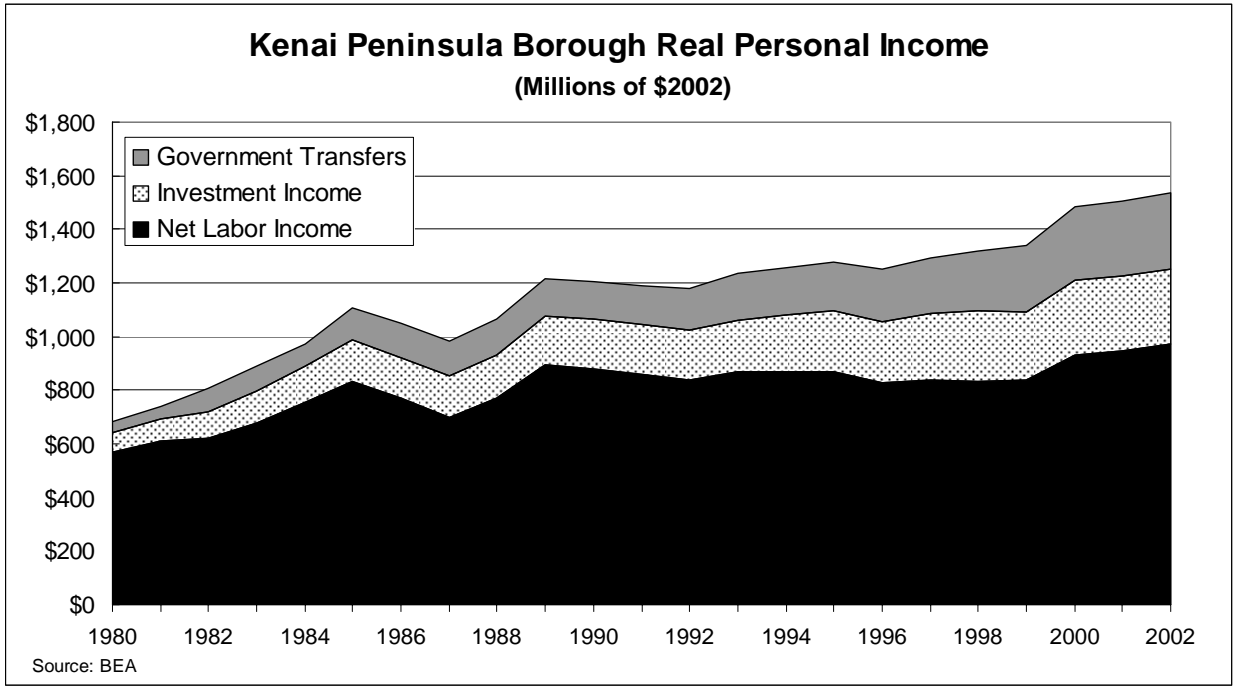


Kenai Peninsula Borough Employment by Industry in 2002

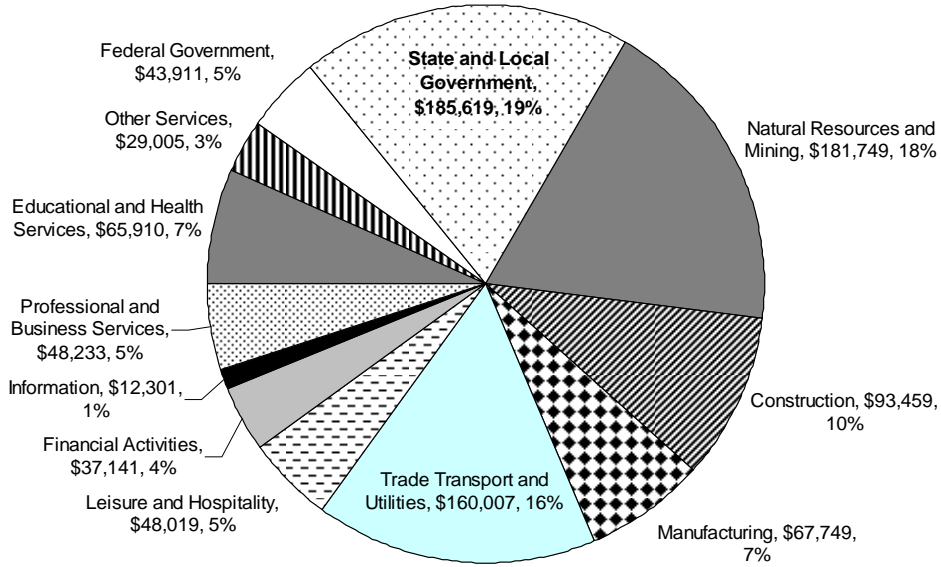


Kenai Peninsula Borough Real Personal Income, 1980-2002 (Thousands of 2002 Dollars)

	<u>1980</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	Annual Growth Rate		
								<u>80-90</u>	<u>90-00</u>	<u>00-02</u>
Net earnings by place of work	570680	833614	877599	867695	931562	944210	973166	4.4%	0.6%	2.2%
Wage and salary disbursements	393513	534649	563196	571856	641749	612146	625669	3.7%	1.3%	-1.3%
Other Labor Income	85646	128021	131813	143478	140998	136424	142293	4.4%	0.7%	0.5%
Self employed income	91521	170944	182590	152361	148815	195640	205204	7.2%	-2.0%	17.4%
Less: Contributions for social insurance	52654	79568	88121	92519	97864	92363	96593	5.3%	1.1%	-0.7%
Plus: Resident Adjustment	36819	46374	68159	86152	80698	86634	92652	6.4%	1.7%	7.2%
Equals: Net earnings by place of residence	554845	800420	857637	861328	914396	938482	969225	4.5%	0.6%	3.0%
plus: Dividends, interest, and rent	71162	152845	187548	227019	276621	281322	279320	10.2%	4.0%	0.5%
plus Personal current transfer receipts	38875	118974	141870	181104	275282	278362	283540	13.8%	6.9%	1.5%
Equals: Personal Income	664882	1072240	1187056	1269451	1466299	1498165	1532085	6.0%	2.1%	2.2%
Population (persons)	25653	37773	41125	46719	49667	50146	50944	4.8%	1.9%	1.3%
Per Capita Real Income	25.9	28.4	28.9	27.2	29.5	29.9	30.1	1.1%	0.2%	0.9%
Investments and transfers as a percentage of personal income	17%	25%	28%	32%	38%	37%	37%	5.3%	3.1%	-1.2%

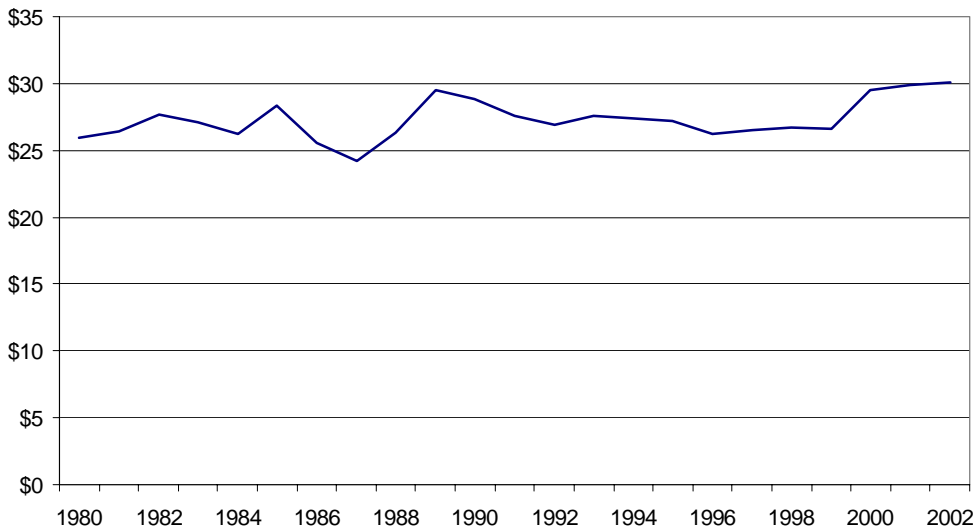


Kenai Peninsula Borough Labor Income by Industry, 2002
(Thousands of Dollars)

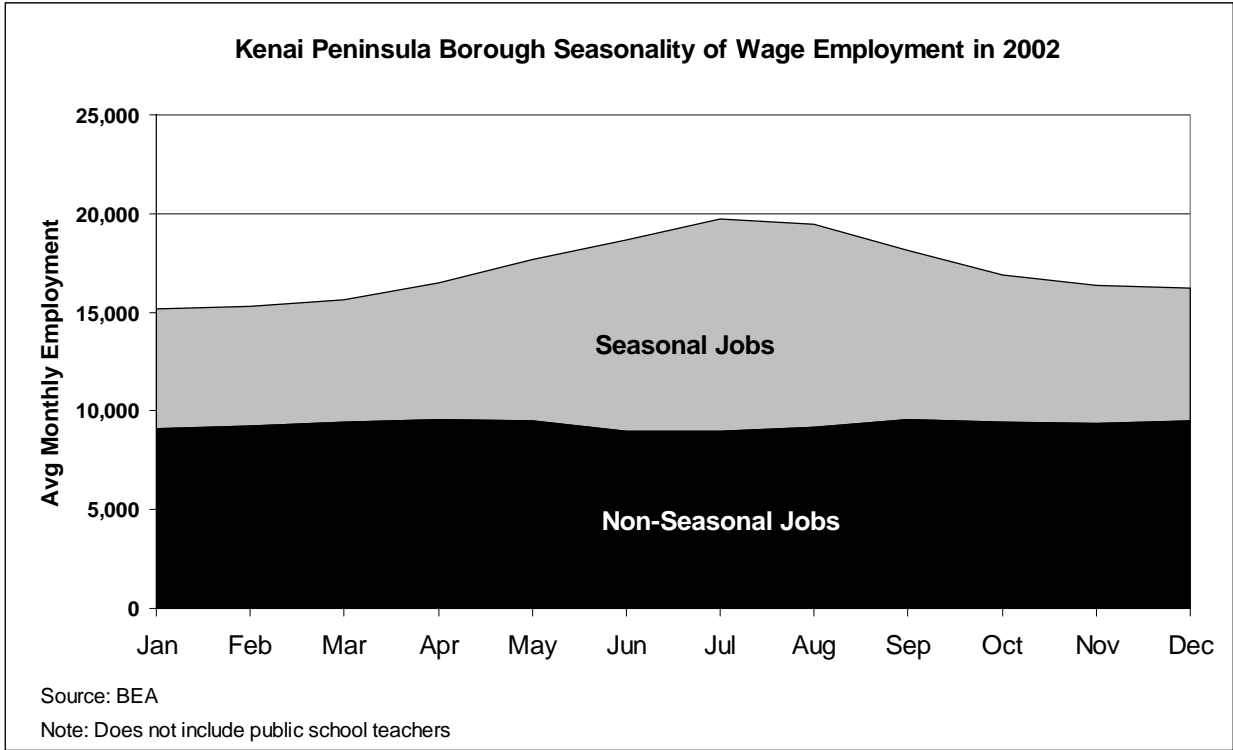


Source: BEA

Kenai Peninsula Borough Real Per Capita Income, 1980 - 2002
(Thousands of 2002 Dollars)



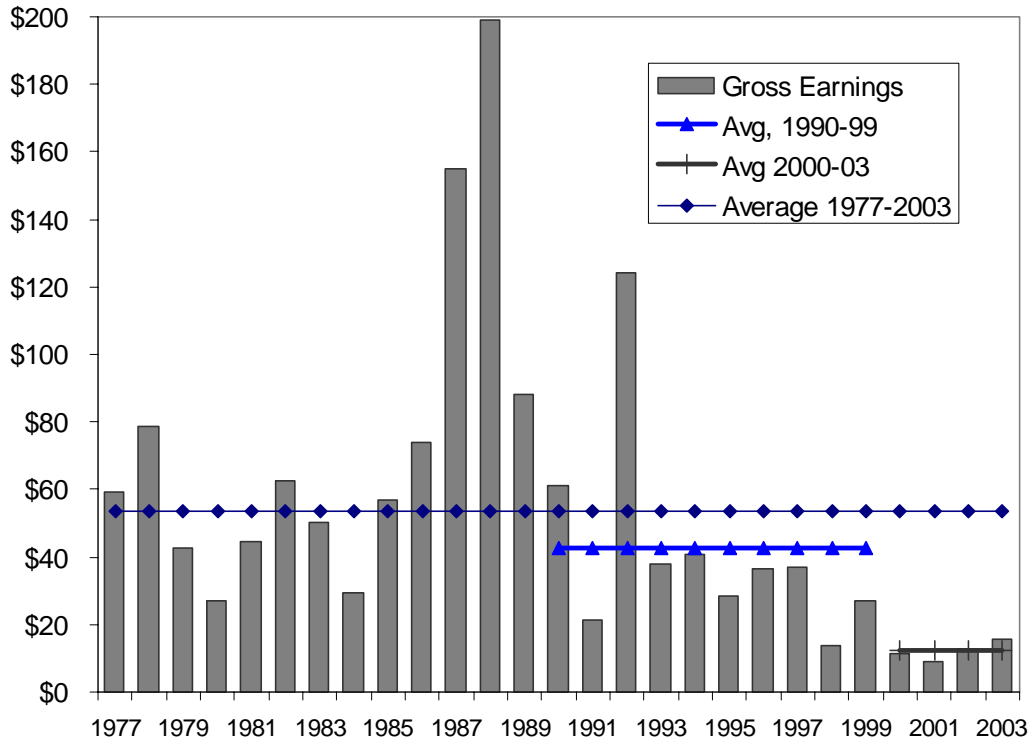
Source: BEA



**Seasonality of Wage and Salary Jobs: 2002
Kenai Peninsula Borough**

Month	Total Jobs	Non-Seasonal	Seasonal	Seasonal Industry Detail					Leisure/Hosp
				Manuf.	Constr	Transp	Trade		
Jan	15,746	9,134	6,036	814	970	498	2,233	1,521	
Feb	15,911	9,256	6,079	842	917	519	2,232	1,569	
Mar	16,235	9,418	6,241	913	889	555	2,231	1,653	
Apr	17,056	9,553	6,927	1,014	968	623	2,417	1,905	
May	18,268	9,505	8,187	1,100	1,142	894	2,658	2,393	
Jun	19,237	8,994	9,667	1,305	1,384	1,050	3,020	2,908	
Jul	19,732	9,000	10,732	1,782	1,434	1,100	3,267	3,149	
Aug	19,428	9,172	10,256	1,464	1,508	1,134	3,115	3,035	
Sep	18,746	9,583	8,587	1,099	1,395	911	2,676	2,506	
Oct	17,464	9,417	7,471	894	1,382	689	2,518	1,988	
Nov	16,944	9,391	6,977	848	1,301	576	2,410	1,842	
Dec	16,774	9,488	6,710	845	1,111	542	2,393	1,819	
Summer/ Winter	1.21	0.97	1.63	1.82	1.44	2.11	1.37	1.56	

Cook Inlet Salmon Fishery Total Gross Earnings (Millions of 2002 Dollars)



Source: Alaska CFEC

APPENDIX B. KENAI NATIONAL WILDLIFE REFUGE VISITATION

1. **On-site** visits are those which occur on the refuge. Most recreational visits to the refuge are incidental (interpretation and nature observation) with sport fishing being second in importance. Smaller numbers of visits are made for non-consumptive uses (rafting, canoeing, photography, etc.) and for sport hunting.
2. **Refuge-dependent** visits include all on-site visits as well as 1) sport fishing trips to fresh and saltwater sites where the fish are dependent upon the habitat of the refuge, and 2) sport hunting trips to sites where the game is dependent upon the habitat of the refuge. Most of the additional (not on-site) refuge-dependent visits are for sport fishing.
3. On-site visitor trips totaled 303 thousand and refuge-dependent visitor trips totaled 523 thousand. Some sport fishing and most big game sport hunting trips are multi-day, so the number of visitor days exceeds the number of visitor trips. The total number of visitors from outside the Kenai Peninsula Borough determines the level of recreational expenditures drawn into the local economy from outside visitors. There were 220 thousand outside visitors to the refuge and 354 thousand refuge-dependent visitors.
4. Visitation data is scarce, particularly information on residence of the visitor. The authors were forced to use judgment in assigning a residence to some visitor categories.
5. The allocation of fresh water sport fishing trips to on-site and refuge-dependent categories was done at the river/lake level. For salt water trips we assigned 40 percent of trips targeting salmon, and half that percent for trips targeting both salmon and halibut, to refuge-dependent activity.
6. About 4 percent of on-site visits and 7 percent of refuge-dependent visits involve use of a guide.
7. Most guided trips were for sport fishing and non-consumptive uses.
8. Over half the visits to the refuge are made by non-local Alaska residents. Local residents make nearly 30 percent of the visits. Non-residents make about 20 percent of the visits.
9. About 40 percent of refuge-dependent trips involve non-local Alaska residents. Local residents generate 32 percent of the trips. Non-Alaska residents generate 28 percent of the trips.

TABLE B.1.

**KENAI NATIONAL WILDLIFE REFUGE
RECREATIONAL VISITS: 2004**

	LOCAL RESIDENT	NON-LOCAL RESIDENT	NON- ALASKA RESIDENT	TOTAL	TOTAL NET LOCAL RESIDENT
	-----	-----	-----	-----	-----
TOTAL RECREATIONAL VISITS					
TOTAL KPB	NA	NA	NA	NA	NA
REFUGE DEPENDENT	169,612	210,344	143,393	523,349	353,737
ON-SITE	82,415	139,778	81,101	303,294	220,879
SPORT FISHING					
TOTAL KPB	NA	NA	NA	NA	NA
REFUGE DEPENDENT	100,837	100,837	86,432	288,106	187,269
ON-SITE	14,504	30,389	24,173	69,066	54,562
SPORT HUNTING--BIG GAME					
TOTAL KPB	NA	NA	NA	NA	NA
REFUGE DEPENDENT	2,639	414	84	3,137	498
ON-SITE	1,775	297	51	2,122	348
SPORT HUNTING--OTHER					
TOTAL KPB	NA	NA	NA	NA	NA
REFUGE DEPENDENT	3,395	0	0	3,395	0
ON-SITE	3,395	0	0	3,395	0
NON-CONSUMPTIVE USE					
TOTAL KPB	NA	NA	NA	NA	NA
REFUGE DEPENDENT	1,870	7,640	16,296	25,805	23,935
ON-SITE	1,870	7,640	16,296	25,805	23,935
INCIDENTAL VISITS					
TOTAL KPB	NA	NA	NA	NA	NA
REFUGE DEPENDENT	60,872	101,453	40,581	202,906	142,034
ON-SITE	60,872	101,453	40,581	202,906	142,034

NOTE: MOST VISITS ARE LESS THAN A DAY, BUT SOME ARE MULTIDAY, SO THE NUMBER OF VISITOR DAYS DOES NOT EQUAL THE NUMBER OF VISITS.

TABLE B.2.

**KENAI NATIONAL WILDLIFE REFUGE
RECREATIONAL VISITS TO THE REFUGE (ON-SITE): 2004**

	LOCAL RESIDENT	NON-LOCAL RESIDENT	NON- ALASKA RESIDENT	TOTAL	TOTAL NET LOCAL RESIDENT
	-----	-----	-----	-----	-----
TOTAL RECREATIONAL VISITS	82,415	139,778	81,101	303,294	220,879
SPORT FISHING	14,504	30,389	24,173	69,066	54,562
SPORT HUNTING--BIG GAME	1,775	297	51	2,122	348
SPORT HUNTING--OTHER	3,395	0	0	3,395	0
NON-CONSUMPTIVE USE	1,870	7,640	16,296	25,805	23,935
INCIDENTAL VISITS	60,872	101,453	40,581	202,906	142,034

NOTE: MOST VISITS ARE LESS THAN A DAY, BUT SOME ARE MULTIDAY, SO THE NUMBER OF VISITOR DAYS DOES NOT EQUAL THE NUMBER OF VISITS.

TABLE B.3.

**KENAI NATIONAL WILDLIFE REFUGE
RECREATIONAL VISITS DEPENDENT ON THE REFUGE: 2004**

	LOCAL RESIDENT	NON-LOCAL RESIDENT	NON- ALASKA RESIDENT	TOTAL	TOTAL NET LOCAL RESIDENT
	-----	-----	-----	-----	-----
TOTAL RECREATIONAL VISITS	169,612	210,344	143,393	523,349	353,737
SPORT FISHING	100,837	100,837	86,432	288,106	187,269
SPORT HUNTING--BIG GAME	2,639	414	84	3,137	498
SPORT HUNTING--OTHER	3,395	0	0	3,395	0
NON-CONSUMPTIVE USE	1,870	7,640	16,296	25,805	23,935
INCIDENTAL VISITS	60,872	101,453	40,581	202,906	142,034

NOTE: MOST VISITS ARE LESS THAN A DAY, BUT SOME ARE MULTIDAY, SO THE NUMBER OF VISITOR DAYS DOES NOT EQUAL THE NUMBER OF VISITS.

TABLE B.4.

KENAI NATIONAL WILDLIFE REFUGE GUIDE USE BY RECREATIONAL USERS: 2004

	TOTAL	GUIDED	NOT GUIDED
	-----	-----	-----
TOTAL RECREATIONAL VISITS			
TOTAL KPB			
REFUGE DEPENDENT	523,349	59,851	463,498
ON-SITE	303,294	11,336	291,958
SPORT FISHING			
TOTAL KPB			
REFUGE DEPENDENT	288,106	51,283	236,823
ON-SITE	69,066	2,794	66,272
SPORT HUNTING--BIG GAME			
TOTAL KPB			
REFUGE DEPENDENT	3,137	81	3,056
ON-SITE	2,122	55	2,067
SPORT HUNTING--OTHER			
TOTAL KPB			
REFUGE DEPENDENT	3,395	0	3,395
ON-SITE	3,395	0	3,395
NON-CONSUMPTIVE USE			
TOTAL KPB			
REFUGE DEPENDENT	25,805	8,487	17,318
ON-SITE	25,805	8,487	17,318
INCIDENTAL VISITS			
TOTAL KPB			
REFUGE DEPENDENT	202,906	0	202,906
ON-SITE	202,906	0	202,906

TABLE B.5.

**KENAI NATIONAL WILDLIFE REFUGE
FACT SHEET FOR ESTIMATION OF RECREATIONAL VISITS**

SPORT FISHING

Total trips--Alaska Department of Fish and Game, Harvest, Catch, and Participation in Alaska Sport Fisheries, average from 1990 to present.
also ADF&G online database at <http://www.sf.adfg.state.ak.us/Statewide/ParticipationAndHarvest/main.cfm>
Allocation to Refuge Specific--see allocation sheet
Allocation to Refuge Related
freshwater--see allocation sheet
saltwater is 40% of trips in Cook Inlet targeting salmon.
40% factor taken from Economic Impacts of the Kenai National Wildlife Refuge
Cook Inlet salmon includes the following ADFG reporting areas--Anchor River, Other Cook Inlet/Gulf Coast West of Gore Point
Trips targeting salmon based on charter trips targeting salmon and 1/2 half of charter trips targeting both halibut and salmon,
from Management Alternatives for the Guided Sport Fishery for Halibut Off Alaska.
Residency-- Based on ISER survey data from sportfish study, with variation between refuge related and refuge specific
Guided share of trips--Based on ISER survey data from sportfish study and on ADF&G reports of guided/non-guided trips,
with variation between refuge related and refuge specific

SPORT HUNTING--BIG GAME

Total trips--Alaska Department of Fish and Game, Alaska Wildlife Harvest Summary, average from 1989-90 to 1994-95.
also species-specific Management and Harvest reports at <http://www.wildlife.alaska.gov/pubs/techpubs/mgt.cfm> through 2003
Allocation to Refuge Specific--Game Management Units (GMU) 15A, 15B and .25 15C.see allocation sheet
Allocation to Refuge Related--Game Management Units (GMU) 15A, 15B, and 15C
Residency--Alaska Department of Fish and Game, Alaska Wildlife Harvest Summary, average from 1989-90 to 1994-95.
Guided share of trips--
Non-residents--McCollom, Non-Resident Hunter: Their Trips Characteristics
Residents--author assumption

SPORT HUNTING--OTHER

Waterfowl estimates from USFWS annual national waterfowl reports; other game from
USFWS National Survey of Fishing, Hunting and Wildlife Associated Recreation
Allocation to Refuge Specific--RIMS report
Allocation to Refuge Related--same as refuge specific
Residency--author assumption
Guided share of trips--
Non-residents--author assumption
Residents--author assumption

NON-CONSUMPTIVE USE

Total trips--Guided trips from KNWR data on commercial use visitor days for guided river rafting,
general visitor activities (photography, hiking, etc.) and guided canoeing.
Updated with 1996 and 2001 USFWS National Survey of Fishing, Hunting and Wildlife Associated Recreation, Alaska Report
Unguided trips based on a ratio to guided trips by residency, author assumption
Allocation to Refuge Specific--KNWR data
Allocation to Refuge Related--same as refuge specific
Residency--Guided trips, author assumption
Guided share of trips-- na

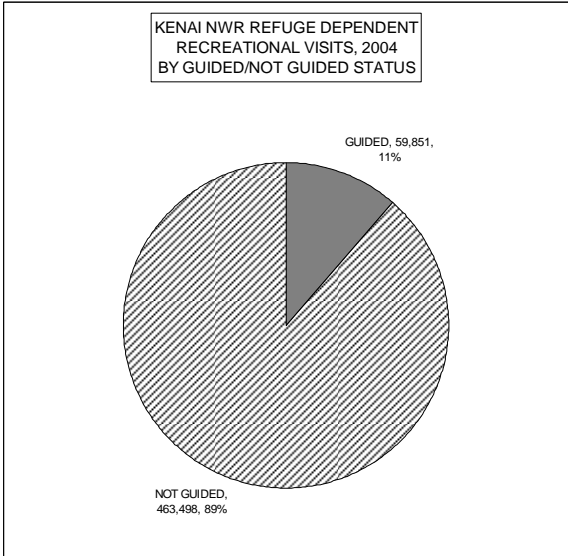
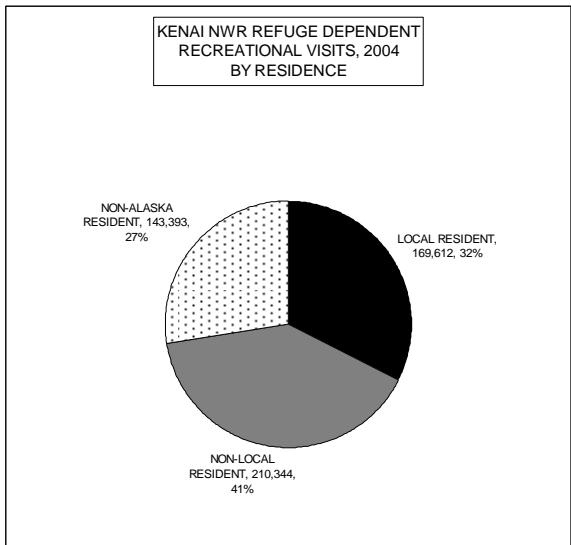
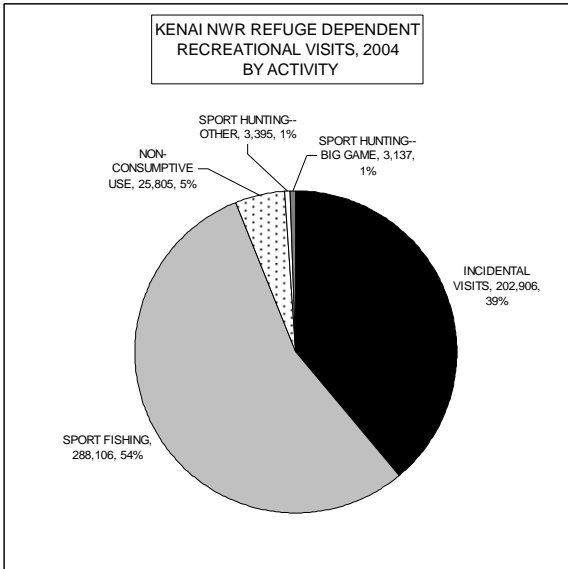
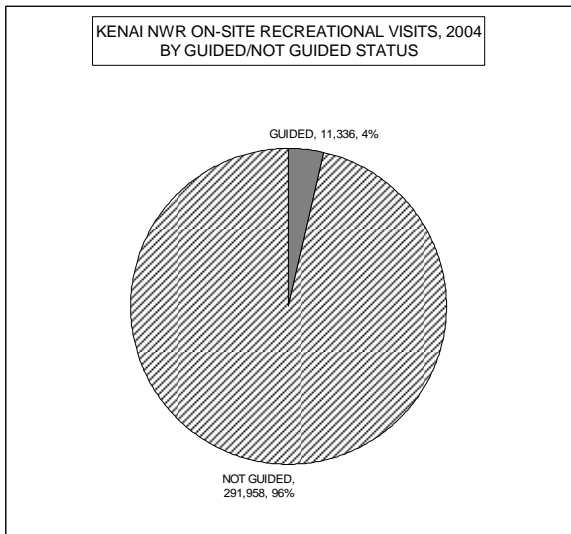
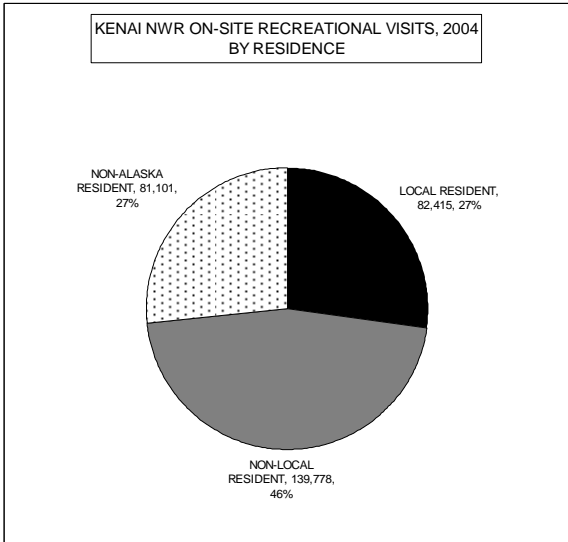
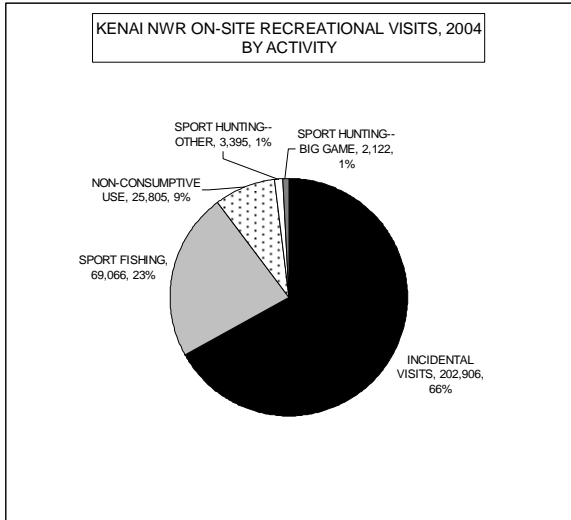
INCIDENTAL VISITS

Combined RIMS estimates and Alaska traffic counts at http://www.dot.state.ak.us/stwdplng/highwaydata/traffic.shtml#traffic_reports
Residency--author assumption, similar to allocation of residency of sport fishing trips.

TABLE B.6.

**KENAI NATIONAL WILDLIFE REFUGE
SPORT FISHING ALLOCATION SHEET**

ON SITE	REFUGE DEPENDENT	
0	0.15	1501 ANCHOR RIVER, WHISKEY GULCH, AND DEEP CREEK AREA SALTWATER
0	0	1502 TUTKA BAY SALTWATER
0	0	1503 HALIBUT COVE SALTWATER
0	0.15	1504 HOMER SPIT SALTWATER
0	0	1505 OTHER KACHEMAK BAY SALTWATER
0	0	1506 RESURRECTION BAY SALTWATER
0	0.15	1507 LOWER COOK INLET/OUTER GULF COAST SALTWATER
0	0	1508 OTHER SALTWATER
0	1	1509 A. KENAI RIVER - COOK INLET TO SOLDOTNA BRIDGE FRESHWATER
0	1	1510 B. KENAI RIVER - SOLDOTNA BRIDGE TO MOOSE RIVER FRESHWATER
0.3	1	1511 C. KENAI RIVER - MOOSE RIVER TO SKILAK OUTLET FRESHWATER
0.3	1	1512 D. KENAI RIVER - SKILAK INLET TO KENAI LAKE FRESHWATER
0.1	1	1513 KASILOF RIVER FRESHWATER
0	0	1514 ANCHOR RIVER FRESHWATER
0	0	1516 DEEP CREEK FRESHWATER
0	0	1517 NINILCHIK RIVER FRESHWATER
1	1	1519 SWANSON RIVER FRESHWATER
1	1	1520 SWANSON RIVER CANOE ROUTE LAKES FRESHWATER
1	1	1521 SWAN LAKE CANOE SYSTEM FRESHWATER
1	1	1522 SKILAK LAKE FRESHWATER
1	1	1523 HIDDEN LAKE FRESHWATER
1	1	1524 RUSSIAN RIVER FRESHWATER
0	0	1525 QUARTZ CREEK FRESHWATER
0	0	1526 CRESCENT LAKE FRESHWATER
0	0	1527 RESURRECTION CREEK (NEAR HOPE) FRESHWATER
0.4	0.4	1529 OTHER STREAMS FRESHWATER
0.4	0.4	1530 OTHER LAKES FRESHWATER
0	0	1531 CHINA POOT LAKE - P.U. DIPNET
0	1	1532 KENAI RIVER - P.U. DIPNET
0	0	1539 NINILCHIK BEACH (DEEP CREEK TO SET NET ACCESS) SALTWATER CLA
0	0	1540 CLAM GULCH BEACH (SET NET ACCESS TO KASILOF RIVER) SALTWATER



APPENDIX C. KENAI NATIONAL WILDLIFE REFUGE EXPENDITURES

1. Annual on-site recreation expenditures are \$23 million, and refuge-dependent expenditures are \$54 million. New money brought into the economy by non-local residents is \$17 million for on-site visits and \$39.7 million for refuge-dependent visits.
2. Expenditures per visit are highest for non-resident guided sport hunting for big game, and lowest for incidental visits. These estimates include only trip related expenditures made within the Kenai Peninsula Borough. They exclude trip related expenditures made outside the Kenai Peninsula Borough within Alaska. They also exclude equipment expenditures and travel expenditures to get to Alaska by non-residents.
3. Estimation of expenditures per visitor is difficult because of a lack of consistent and complete data.
4. Nearly half of **on-site** expenditures are related to sport fishing. Sport hunting is the next largest category followed by non-consumptive use and incidental visits.
5. Non Alaska residents account for about 47 percent of on-site expenditures. Non-local resident Alaskans account for about 27 percent. Local residents account for an additional 26 percent.
6. Of money brought into the regional economy by non-local resident visitors for on-site visits, about 56 percent is spent for sport fishing. Non-consumptive use is the next largest category (32 percent) followed by incidental visits (9 percent) and sport hunting (3 percent).
7. Of expenditures for **refuge-dependent** visits, 75 percent goes to sport fishing. Non-consumptive use is the next largest category followed by sport hunting and incidental visits.
8. Non-Alaska residents account for over half (52 percent) of expenditures for refuge-dependent visits, local residents for about 32 percent and non-local Alaska residents for 26 percent.
9. Of money brought into the regional economy by non-local resident visitors for refuge-dependent visits, about 80 percent is spent for sport fishing. Non-consumptive use accounts for about 13 percent, incidental visits 4 percent and sport hunting, 2 percent.

TABLE C.1.

**KENAI NATIONAL WILDLIFE REFUGE
RECREATIONAL VISITS: 2004
TRIP RELATED EXPENDITURES (MILLION \$)**

	LOCAL RESIDENT	NON-LOCAL RESIDENT	NON- ALASKA RESIDENT	TOTAL	TOTAL NET LOCAL RESIDENT
	-----	-----	-----	-----	-----
TOTAL RECREATIONAL VISITS					
REFUGE DEPENDENT	\$14.245	\$11.768	\$27.961	\$53.975	\$39.729
ON-SITE	\$6.027	\$6.196	\$10.764	\$22.986	\$16.960
SPORT FISHING					
REFUGE DEPENDENT	\$8.762	\$8.762	\$23.207	\$40.731	\$31.969
ON-SITE	\$1.429	\$3.312	\$6.164	\$10.905	\$9.476
SPORT HUNTING--BIG GAME					
REFUGE DEPENDENT	\$2.703	\$0.431	\$0.421	\$3.555	\$0.852
ON-SITE	\$1.818	\$0.309	\$0.267	\$2.393	\$0.575
SPORT HUNTING--OTHER					
REFUGE DEPENDENT	\$1.915	\$0.000	\$0.000	\$1.915	\$0.000
ON-SITE	\$1.915	\$0.000	\$0.000	\$1.915	\$0.000
NON-CONSUMPTIVE USE					
REFUGE DEPENDENT	\$0.196	\$1.459	\$3.886	\$5.542	\$5.346
ON-SITE	\$0.196	\$1.459	\$3.886	\$5.542	\$5.346
INCIDENTAL VISITS					
REFUGE DEPENDENT	\$0.670	\$1.116	\$0.446	\$2.232	\$1.562
ON-SITE	\$0.670	\$1.116	\$0.446	\$2.232	\$1.562

TABLE C.2.

**KENAI NATIONAL WILDLIFE REFUGE
RECREATIONAL VISITS TO THE REFUGE (ON-SITE): 2004
TRIP RELATED EXPENDITURES (MILLION \$)**

	LOCAL RESIDENT	NON-LOCAL RESIDENT	NON- ALASKA RESIDENT	TOTAL	TOTAL NET LOCAL RESIDENT
	-----	-----	-----	-----	-----
TOTAL RECREATIONAL VISITS	\$6.03	\$6.20	\$10.76	\$22.99	\$16.96
SPORT FISHING	\$1.43	\$3.31	\$6.16	\$10.91	\$9.48
SPORT HUNTING--BIG GAME	\$1.82	\$0.31	\$0.27	\$2.39	\$0.58
SPORT HUNTING--OTHER	\$1.91	\$0.00	\$0.00	\$1.91	\$0.00
NON-CONSUMPTIVE USE	\$0.20	\$1.46	\$3.89	\$5.54	\$5.35
INCIDENTAL VISITS	\$0.67	\$1.12	\$0.45	\$2.23	\$1.56

TABLE C.3.

**KENAI NATIONAL WILDLIFE REFUGE
RECREATIONAL VISITS DEPENDENT ON THE REFUGE: 2004
TRIP RELATED EXPENDITURES (MILLION \$)**

	LOCAL RESIDENT	NON-LOCAL RESIDENT	NON- ALASKA RESIDENT	TOTAL	TOTAL NET LOCAL RESIDENT
	-----	-----	-----	-----	-----
TOTAL RECREATIONAL VISITS	\$14.25	\$11.77	\$27.96	\$53.97	\$39.73
SPORT FISHING	\$8.76	\$8.76	\$23.21	\$40.73	\$31.97
SPORT HUNTING--BIG GAME	\$2.70	\$0.43	\$0.42	\$3.56	\$0.85
SPORT HUNTING--OTHER	\$1.91	\$0.00	\$0.00	\$1.91	\$0.00
NON-CONSUMPTIVE USE	\$0.20	\$1.46	\$3.89	\$5.54	\$5.35
INCIDENTAL VISITS	\$0.67	\$1.12	\$0.45	\$2.23	\$1.56

TABLE C.4.

**KENAI NATIONAL WILDLIFE REFUGE
TRIP RELATED EXPENDITURES PER VISIT (ON-SITE): 2004**

	ALASKA RESIDENT		LOCAL RESIDENT		NON-LOCAL RESIDENT		NON-ALASKA RESIDENT	
	TOTAL	NON-GUIDED	GUIDED	NON-GUIDED	GUIDED	NON-GUIDED	TOTAL	GUIDED
SPORT FISHING			\$198	\$98	\$208	\$108		\$390
SPORT HUNTING--BIG GAME			\$3,500	\$1,000	\$3,422	\$922		\$7,521
SPORT HUNTING--OTHER			XXX	564	XXX	XXX		XXX
NON-CONSUMPTIVE USE			\$173	\$98	\$251	\$176		\$326
INCIDENTAL VISITS		XXX		\$11	XXX	NA		XXX

XXX = NO TRIPS IN THIS CATEGORY

NA = DETAIL ON EXPENDITURES IN THIS CATEGORY NOT AVAILABLE. AVERAGE EXPENDITURE FOR MORE INCLUSIVE CATEGORY USED.

TRIP SPECIFIC EXPENDITURES PER PERSON PER VISIT (EXCLUDES EQUIPMENT AND VEHICLE PURCHASE)
ALL TRIP SPECIFIC EXPENDITURES ATTRIBUTED TO THE SITE VISIT

TABLE C.5.

**KENAI NATIONAL WILDLIFE REFUGE
FACT SHEET FOR ESTIMATION OF VISITOR EXPENDITURES**

SPORT FISHING

LOCAL RESIDENT ISER SPORTFISH STUDY AVG TRIP EXPENDITURE PER HH TO KENAI PENINSULA
ADJUSTED FOR SIZE OF PARTY AND INFLATION
NON- LOCAL RESIDENT SAME AS LOCAL RESIDENT
NON-ALASKA RESIDENT ISER SPORTFISH STUDY AVG TRIP EXPENDITURE PER HH TO KENAI PENINSULA
ADJUSTED FOR SIZE OF PARTY AND INFLATION
GUIDE VS NON-GUIDE ADF&G Participation Data
All Expenditure data from previous report adjusted with reference to
data in USFWS 2001 Natinal Survey of Fising, Hunting and Wilflife-Associated Recreation

SPORT HUNTING--BIG GAME

LOCAL RESIDENT McCOLLUM MOOSE HUNT RESPONDENT TRIP EXPENDITURE, STATEWIDE, ADJUSTED FOR INFLATION
NON- LOCAL RESIDEN SAME AS LOCAL RESIDENT
NON-ALASKA RESIDEI McCOLLUM MOOSE HUNT RESPONDENT INSTATE TRIP EXPENDITURE STATEWIDE, ADJUSTED FOR INFLATION
GUIDE VS NON-GUIDE FOR NON-ALASKA RESIDENTS GUIDED TRIP ASSUMED TO COST \$1500 MORE THAN AVERAGE
All Expenditure data from previous report adjusted with reference to
data in USFWS 2001 Natinal Survey of Fising, Hunting and Wilflife-Associated Recreation

SPORT HUNTING--OTHER

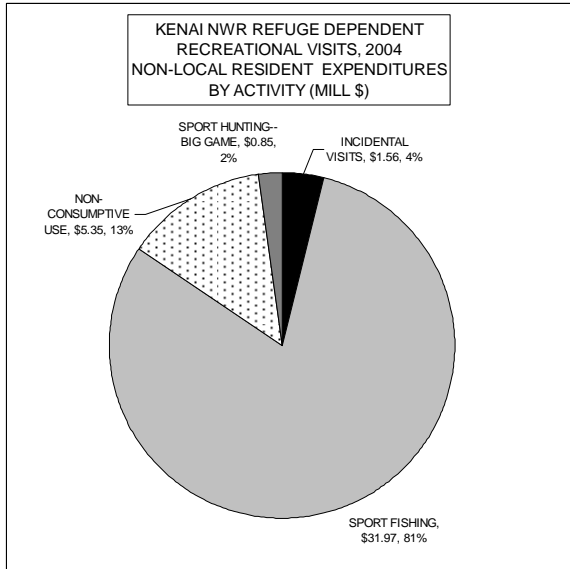
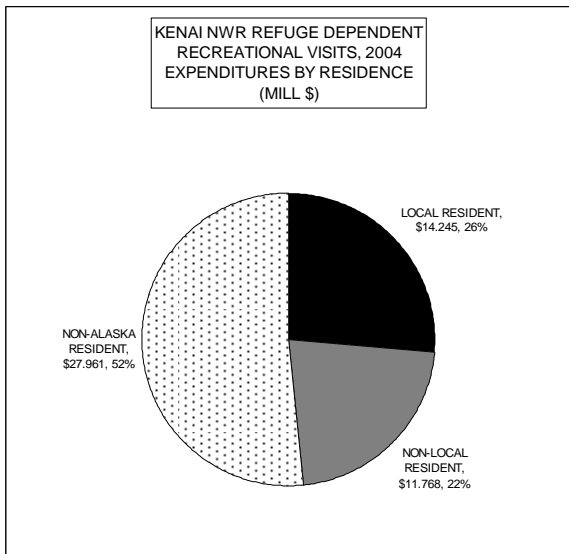
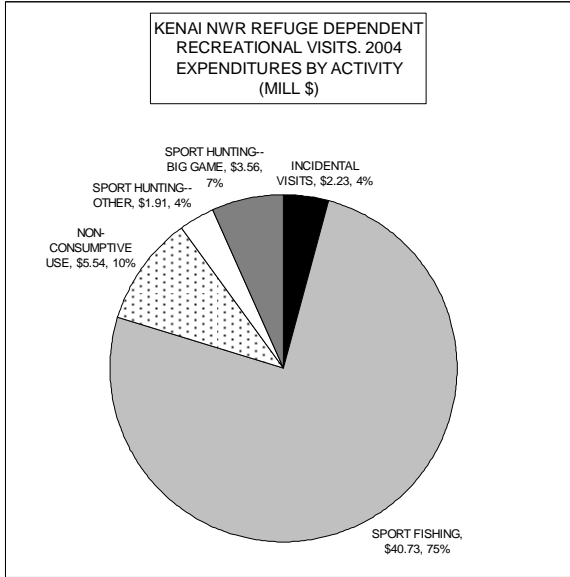
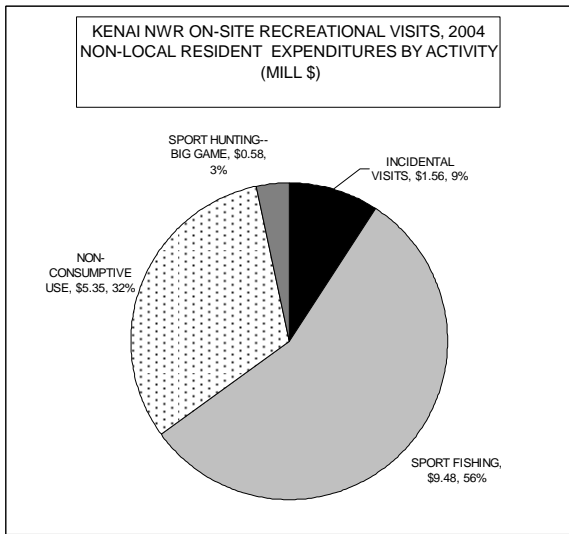
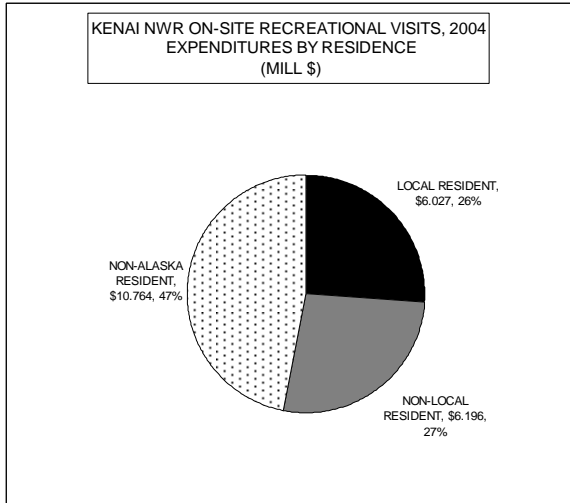
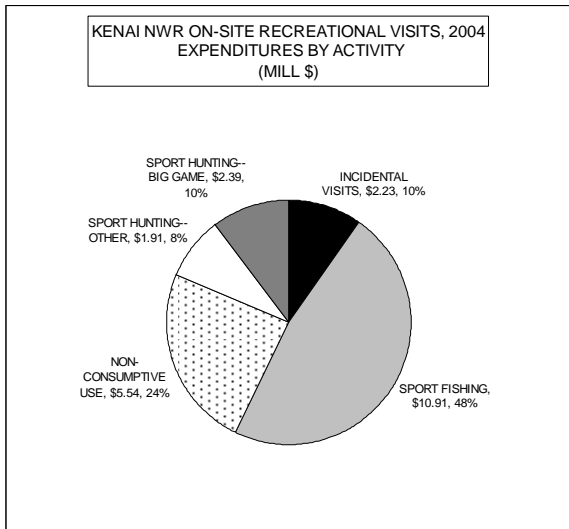
LOCAL RESIDENT McCOLLUM STATEWIDE WATERFOWL HUNT RESPONDENT TRIP EXPENDITURE, ADJUSTED FOR INFLATION
NON- LOCAL RESIDEN SAME AS LOCAL RESIDENT
NON-ALASKA RESIDEI SAME AS LOCAL RESIDENT
GUIDE VS NON-GUIDE Assumed no guides
All Expenditure data from previous report adjusted with reference to
data in USFWS 2001 Natinal Survey of Fising, Hunting and Wilflife-Associated Recreation

NON-CONSUMPTIVE USE

LOCAL RESIDENT EQUAL TO AVERAGE FOR SPORT FISHING
NON- LOCAL RESIDEN McCOLLUM STATEWIDE TRIP EXPENDITURE ESTIMATE DIVIDED BY SIZE OF PARTY ADJUSTED FOR INFLATION
NON-ALASKA RESIDEI SAME AS NON - LOCAL RESIDENT
All Expenditure data from previous report adjusted with reference to
data in USFWS 2001 Natinal Survey of Fising, Hunting and Wilflife-Associated Recreation

INCIDENTAL VISITS

LOCAL RESIDENT AUTHOR'S ESTIMATE
NON- LOCAL RESIDEN AUTHOR'S ESTIMATE
NON-ALASKA RESIDEI AUTHOR'S ESTIMATE



APPENDIX D. KENAI NATIONAL WILDLIFE REFUGE ECONOMIC SIGNIFICANCE

1. Table D-1 (a two-page table) shows in detail the economic significance (and economic impact) of **on-site** spending, measured both in employment and earnings.
2. Recreational on-site visits generate about 400 jobs (annual average) throughout the Kenai Peninsula Borough economy. About half are attributable to sport fishing. Non-consumptive use is next in importance followed by sport hunting and incidental visits.
3. Over half (53 percent) of the jobs created by on-site visits are attributable to visitors from outside Alaska. Non-Local Alaska residents account for about 24 percent and local residents about 22 percent.
4. Table D-2 (also two pages) shows the detailed economic significance (and economic impact) of **refuge-dependent** activities both in terms of employment and earnings. Refuge-dependent activities include all refuge specific activities, plus some additional sport fishing and hunting trips and commercial fishing and fish processing. The total economic significance is 1,318 jobs and \$28.3 million in payroll.
5. Recreational activities account for about three-quarters of the jobs and payroll attributable to the refuge, and commercial fishing activities, one-quarter.
6. Of the jobs generated by the refuge-dependent recreational visits, 75 percent are attributable to sport fishing, 12 to sport hunting, 10 percent to non-consumptive visits, and 3 percent to incidental visits.
7. Of the employment generated by refuge-dependent recreational visits, about 38 percent are attributable to visitors from outside Alaska, and 31 percent each to local residents, non-local Alaska residents.
8. The value of the commercial fishing harvest, and consequently income, varies considerably between years. Employment is less volatile because entry into the fishery is limited. However, Cook Inlet commercial salmon fisheries have been declining in harvest value and employment for over 20 years. In the five years since the last report, the employment generated by commercial fishing attributable to the refuge has declined by 40 percent and income by almost 70 percent.

TABLE D.1.

**KENAI NATIONAL WILDLIFE REFUGE
2004 ECONOMIC SIGNIFICANCE: ON-SITE
REFUGE SPECIFIC**

	JOBS (ANNUAL AVG)	EARNINGS (\$ MIL)	
<hr/>			
RECREATIONAL VISITS : ONSITE TOTAL	389	\$10.01	
SPORT FISHING	197	\$5.14	
SPORT HUNTING	62	\$1.59	
NON-CONSUMPTIVE	97	\$2.45	
INCIDENTAL	33	\$0.83	
<hr/>			
RECREATIONAL VISITS : ONSITE TOTAL			
TOTAL: RESIDENTS PLUS NON-RESIDENTS	389	\$10.01	ECONOMIC SIGNIFICANCE
RESIDENTS	180	\$4.62	
LOCAL RESIDENTS	86	\$2.23	
NON-LOCAL RESIDENTS	94	\$2.37	
NON-RESIDENTS	208	\$5.39	
ITEM: TOTAL NET LOCAL RESIDENTS	302	\$7.77	ADDITION TO ECONOMIC BASE
ITEM: GUIDE AND CHARTER AND LODGE	52	\$1.55	
<hr/>			
SPORT FISHING : ON-SITE			
TOTAL: RESIDENTS PLUS NON-RESIDENTS	196.7	\$5.14	
RESIDENTS	71.9	\$1.84	
LOCAL RESIDENTS	20.5	\$0.55	
NON-LOCAL RESIDENTS	51.4	\$1.29	
NON-RESIDENTS	124.8	\$3.30	
ITEM: TOTAL NET LOCAL RESIDENTS	176.2	\$4.59	
ITEM: GUIDE AND CHARTER AND LODGE	28.3	\$0.84	

TABLE D.1. PART 2.

**KENAI NATIONAL WILDLIFE REFUGE
2004 ECONOMIC SIGNIFICANCE: ON-SITE (CONTINUED)
REFUGE SPECIFIC**

	JOBS (ANNUAL AVG)	EARNINGS (\$ MIL)
SPORT HUNTING, OTHER : ON-SITE		
TOTAL: RESIDENTS PLUS NON-RESIDENTS	28.1	\$0.71
RESIDENTS	28.1	\$0.71
LOCAL RESIDENTS	28.1	\$0.71
NON-LOCAL RESIDENTS	0.0	\$0.00
NON-RESIDENTS	0.0	\$0.00
ITEM: TOTAL NET LOCAL RESIDENTS	0.0	\$0.00
ITEM: GUIDE AND CHARTER AND LODGE	0.0	\$0.00
NON-CONSUMPTIVE USE : ON-SITE		
TOTAL: RESIDENTS PLUS NON-RESIDENTS	97.2	\$2.45
RESIDENTS	25.4	\$0.65
LOCAL RESIDENTS	2.8	\$0.07
NON-LOCAL RESIDENTS	22.6	\$0.57
NON-RESIDENTS	71.8	\$1.80
ITEM: TOTAL NET LOCAL RESIDENTS	94.4	\$2.37
ITEM: GUIDE AND CHARTER AND LODGE	21.0	\$0.62
INCIDENTAL VISITS : ON-SITE		
TOTAL: RESIDENTS PLUS NON-RESIDENTS	33.0	\$0.83
RESIDENTS	25.6	\$0.65
LOCAL RESIDENTS	9.8	\$0.25

TABLE D.2.

**KENAI NATIONAL WILDLIFE REFUGE
2004 ECONOMIC SIGNIFICANCE
REFUGE DEPENDENT**

	JOBS (ANNUAL AVG)	EARNINGS (\$ MIL)	
GRAND TOTAL	1,318	\$28.31	
RECREATION	995	\$21.68	
SPORT FISHING	743	\$15.86	
SPORT HUNTING	122	\$2.54	
NON-CONSUMPTIVE	97	\$2.45	
INCIDENTAL	33	\$0.83	
COMMERCIAL FISHING	323	\$6.63	
ITEM: ADDITION TO ECONOMIC BASE OF KPB	1,008	\$21.74	
RECREATION	685	\$15.11	
COMMERCIAL FISHING	323	\$6.63	
RECREATIONAL VISITS : TOTAL			
TOTAL: RESIDENTS PLUS NON-RESIDENTS	995	\$21.68	ECONOMIC SIGNIFICANCE
RESIDENTS	615	\$13.06	
LOCAL RESIDENTS	310	\$6.56	
NON-LOCAL RESIDENTS	306	\$6.48	
NON-RESIDENTS	379	\$8.62	
ITEM: TOTAL NET LOCAL RESIDENTS	685	\$15.11	ADDITION TO ECONOMIC BASE
ITEM: GUIDE AND CHARTER AND LODGE	84	\$2.25	
SPORT FISHING: REFUGE DEPENDENT			
TOTAL: RESIDENTS PLUS NON-RESIDENTS	742.9	\$15.86	
RESIDENTS	452.0	\$9.41	
LOCAL RESIDENTS	222.9	\$4.68	
NON-LOCAL RESIDENTS	229.0	\$4.73	

TABLE D.2. PART 2.

**KENAI NATIONAL WILDLIFE REFUGE
2004 ECONOMIC SIGNIFICANCE: (CONTINUED)
REFUGE DEPENDENT**

	JOBS (ANNUAL AVG)	EARNINGS (\$ MIL)
SPORT HUNTING, OTHER : REFUGE DEPENDENT		
TOTAL: RESIDENTS PLUS NON-RESIDENTS	55.5	\$1.16
RESIDENTS	55.5	\$1.16
LOCAL RESIDENTS	26.7	\$0.56
NON-LOCAL RESIDENTS	28.8	\$0.59
NON-RESIDENTS	0.0	\$0.00
ITEM: TOTAL NET LOCAL RESIDENTS	28.8	\$0.59
ITEM: GUIDE AND CHARTER AND LODGE	0.0	\$0.00
NON-CONSUMPTIVE USE : REFUGE DEPENDENT (ON-SITE)		
TOTAL: RESIDENTS PLUS NON-RESIDENTS	97.2	\$2.45
RESIDENTS	25.4	\$0.65
LOCAL RESIDENTS	2.8	\$0.07
NON-LOCAL RESIDENTS	22.6	\$0.57
NON-RESIDENTS	71.8	\$1.80
ITEM: TOTAL NET LOCAL RESIDENTS	94.4	\$2.37
ITEM: GUIDE AND CHARTER AND LODGE	21.0	\$0.62
INCIDENTAL VISITS : REFUGE DEPENDENT (ON-SITE)		
TOTAL: RESIDENTS PLUS NON-RESIDENTS	33.0	\$0.83
RESIDENTS	25.6	\$0.65
LOCAL RESIDENTS	9.8	\$0.25
NON-LOCAL RESIDENTS	15.8	\$0.40

TABLE D.3.

**KENAI NATIONAL WILDLIFE REFUGE
FACT SHEET FOR ESTIMATION OF COMMERCIAL FISHING**

VALUE OF HARVEST

Historical Average of Cook Inlet Salmon Harvest based on Alaska Dept of Fish and Game

NUMBER OF PERMITS FISHED

Alaska Department of Fish and Game

AVERAGE CREW SIZE

ISER, Economic Effects of Management Changes for Kenai River Late-run Sockeye

HARVESTER EXPENDITURES

ISER, Economic Effects of Management Changes for Kenai River Late-run Sockeye

PROCESSOR EXPENDITURES

ISER, Economic Effects of Management Changes for Kenai River Late-run Sockeye

RESIDENCE OF PERMIT HOLDER

Alaska Department of Fish and Game

RESIDENCE OF CREW MEMBERS

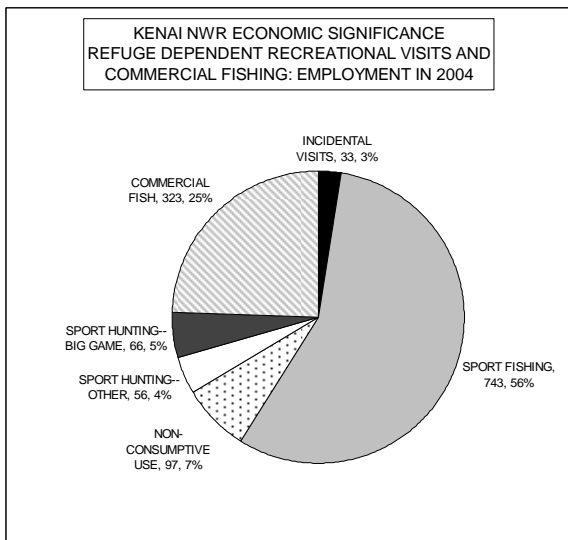
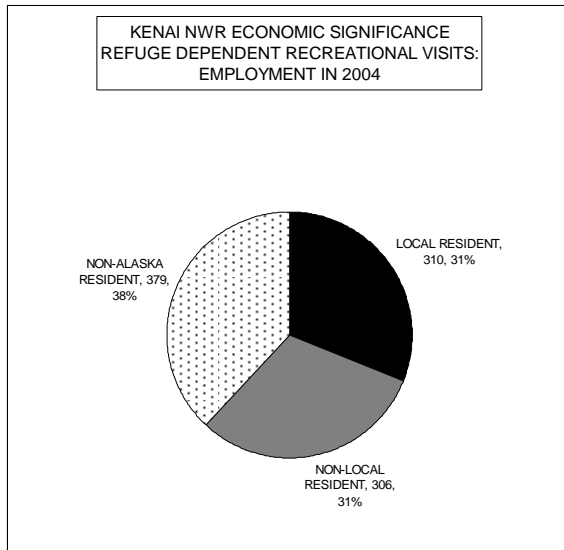
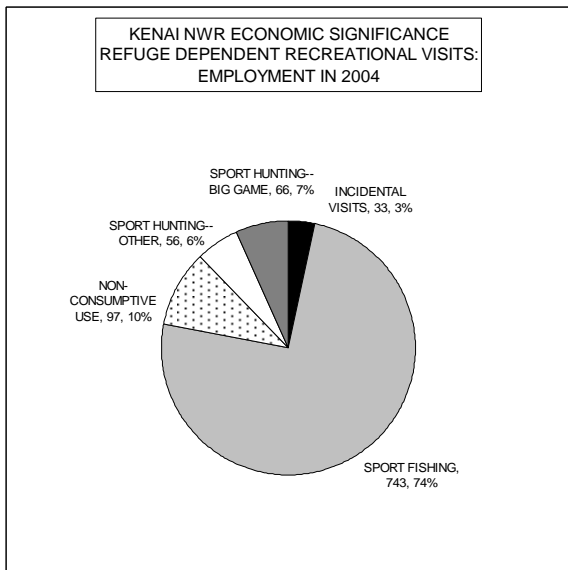
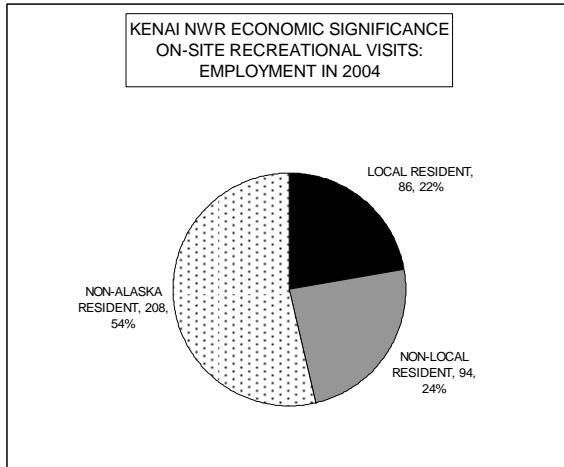
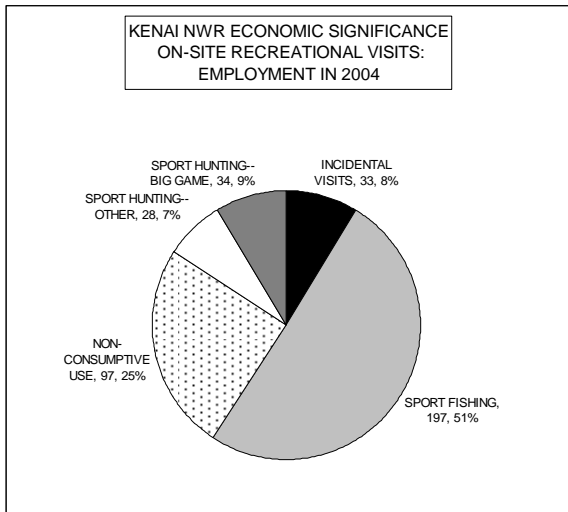
ISER, Economic Effects of Management Changes for Kenai River Late-run Sockeye

SHARE OF ACTIVITY REFUGE DEPENDENT

US Dept of Interior, Fish and Wildlife Service, The Economic Impacts of the Kenai National Wildlife Refuge

LENGTH OF SEASON

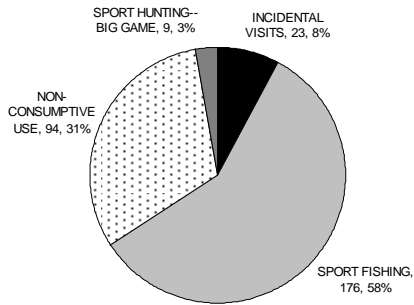
Author estimate



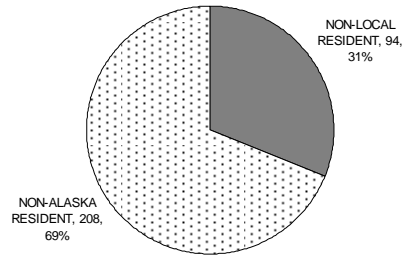
APPENDIX E. KENAI NATIONAL WILDLIFE REFUGE ECONOMIC IMPACT

1. Of the jobs created by **on-site** expenditures that bring new money into the region (non-local and non-Alaska resident spending), about 58 percent are attributable to sport fishing. Non-consumptive use accounts for about 31 percent, incidental visits for 7 percent and sport hunting the remaining 3 percent. Sport hunting has a much lower economic impact than significance because much of sport hunting on the refuge is done by local residents.
2. Of the jobs created by on-site expenditures that bring new money into the region, about 31 percent are attributable to non-local residents and 79 percent to non-Alaska residents.
3. Of the jobs created by **refuge-dependent** recreational expenditures that bring new money into the region (non-local resident spending), about 76 percent are attributable to sport fishing, 14 percent to non-consumptive use, 7 percent to sport hunting and the remainder to incidental visits.
4. Of the jobs created by refuge-dependent recreation expenditures that bring new money into the region, about 45 percent are attributable to non-local residents and 55 percent to non-Alaska residents.
5. Of the total jobs created by refuge-dependent activity that brings new money into the region, sport fishing accounts for 51 percent and commercial fishing 32 percent. Non-consumptive uses add 9 percent, sport hunting 5 percent, and incidental visits 2 percent.

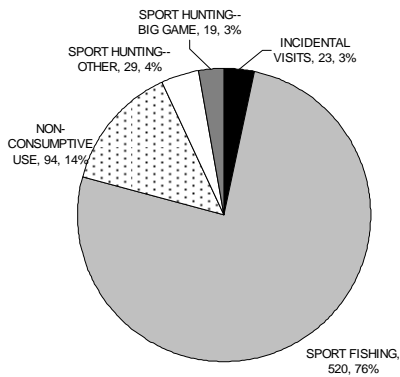
KENAI NWR ECONOMIC IMPACT
ON-SITE RECREATIONAL VISITS:
EMPLOYMENT IN 2004



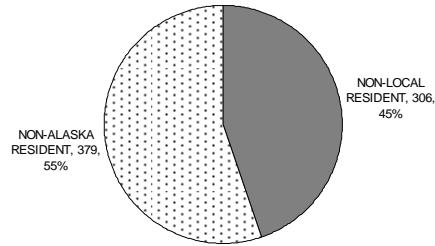
KENAI NWR ECONOMIC IMPACT
ON-SITE RECREATIONAL VISITS:
EMPLOYMENT IN 2004



KENAI NWR ECONOMIC IMPACT
REFUGE DEPENDENT RECREATIONAL VISITS:
EMPLOYMENT IN 2004



KENAI NWR ECONOMIC IMPACT
REFUGE DEPENDENT RECREATIONAL VISITS:
EMPLOYMENT IN 2004



KENAI NWR ECONOMIC IMPACT
REFUGE DEPENDENT RECREATIONAL VISITS AND
COMMERCIAL FISHING: EMPLOYMENT IN 2004

