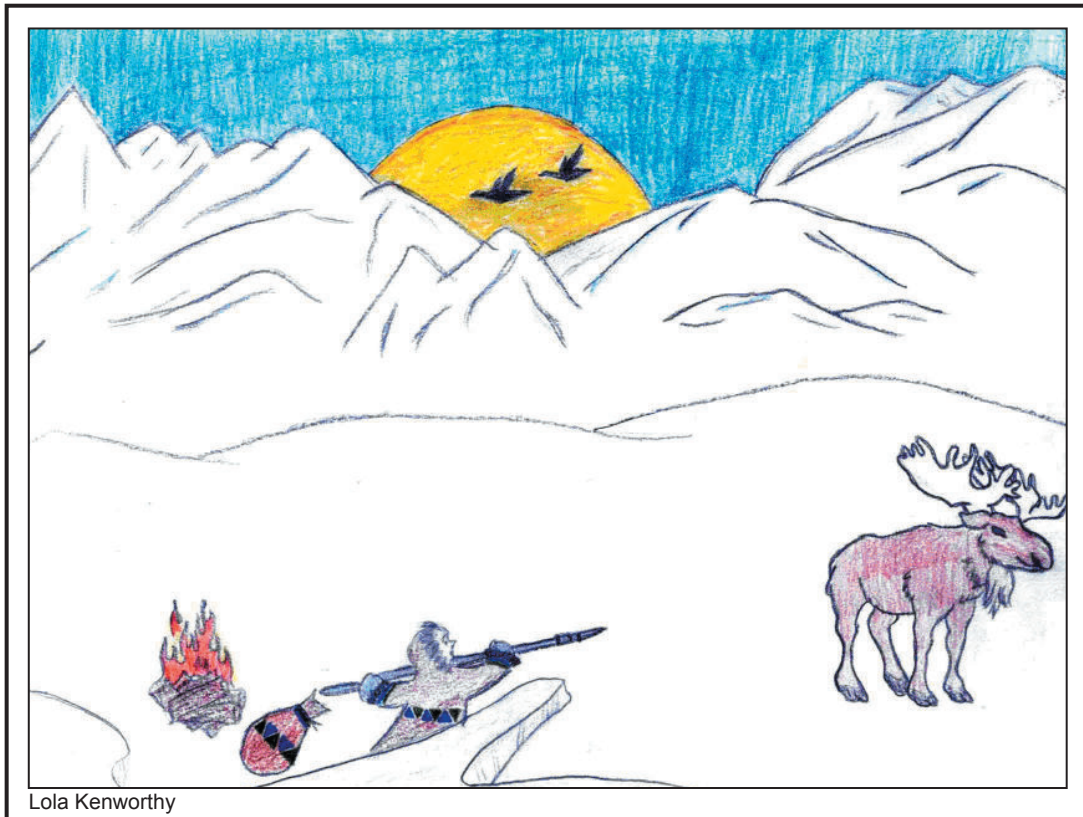


Native Village of Kotzebue
HARVEST SURVEY PROGRAM
2002 – 2003 – 2004



Results of Three Consecutive Years
Cooperating with *Qikiqtagrugmiut*
to Understand their Annual Catch
of Selected Fish and Wildlife

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Acknowledgements

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Introduction

In 2001 the Native Village of Kotzebue began a harvest survey program with an emphasis on using protocols, methodologies and instruments that would be repeatable. Being able to carry out similar efforts in the future using the same program will allow for the direct comparison of catch rates over time. The Tribe has an interest in knowing how much fish and wildlife its members catch, as these amounts are an integral part of many management processes that affect Tribal members.

Examples of the way catch data are used:

- The Federal Subsistence Board reviews historical catch data when it makes customary and traditional determinations, a prerequisite to subsistence management.
- The Alaska Board of Fisheries and the Alaska Board of Game use catch data to establish amounts necessary for subsistence (ANS), a minimum allocation to subsistence uses. Dall sheep ANS determinations in the Baird and DeLong Mountains were based on traditional take documented by the Alaska Department of Fish and Game (ADF&G).
- All three of the boards use catch data to assess whether subsistence needs are being met from year to year.
- The Ice Seal Committee and its Cooperators, continue efforts to understand harvest levels in the State as part of wider undertaking to establish baseline data of population levels and factors influencing these levels.
- Federal managers soon may establish “subsistence use amounts” (SUA), similar to the state’s “amounts necessary for subsistence.”

Catch information collection by the Tribe should allow for more effective advocacy for its members’ subsistence needs, while at the same time providing for a high level of control of the process. Documentation of current catch levels will also provide a snapshot of early twenty-first century harvests for historic purposes.

Personnel

Alex Whiting developed the program in cooperation with Pete Schaeffer and August Nelson Jr. in 2001 and has overseen the program since then. In 2005, the Tribe contracted with James Magdanz to conduct an independent analysis of the dataset.

Technicians August “Augie” Nelson Jr. conducted the 2002 survey, Patrick Savok conducted the 2003 survey, and Mike Tabor conducted the 2004 survey. Augie’s familiarity with most Tribal members and his ability to easily interact with them, especially in the area of hunting and fishing, played no small part in the success of the initial collection and provided momentum for the project for the remaining two years.

The Project

To begin the process, a list of all Native Village of Kotzebue member households in Kotzebue and the surrounding region was made. The list included 480 households in 2002, and 471 households in 2003 and 2004. Households were assigned ID numbers to provide for confidentiality, creation of datasets and to ease the collection process.

Because not all member households hunt and fish similarly, all households were surveyed using a category determination survey (Appendix 1) in 2001 and organized into high, medium, or low harvesting categories. Catches within each household grouping were expected to vary less than catches in the population as a whole, providing greater confidence in expanded estimates of catches.

Due to the large number of member households, researchers elected to survey samples of households. The ID numbers were used to randomize the households for selection to participate in the project and a list of 50 randomly drawn households in each household category was produced at the beginning of each project year. Technicians would move down the list contacting households, if a contact was unsuccessful, the next household on the list would be added to the sample until a minimum of 30 households had been surveyed to provide adequate statistical confidence. At least 33 households were contacted in each household category during all 3 years (Table 1).

A simple one-page harvest survey instrument listing a number of important fish, birds, eggs and mammals typically harvested in northwest Alaska was created (Appendix 2). The survey form included 26 species and four species groups (ducks, duck eggs, goose eggs, and gull eggs). Species were selected because of their importance in the local harvest and management regimes. For instance, moose are managed closely while snowshoe hares are not, so the survey included moose, but not hares. The same could be said for sheefish or salmon, which were documented, and for smelt or tomcod, which were not. A short species list allowed for simplicity and brevity when administering the survey. The survey form was the same in 2002 and 2003; king crab was added to the survey form in 2004.

Calendars were created with an introduction to the project provided on the cover and included artwork from local students within the theme of harvesting food from the country. The calendars were used as a reminder of the project and for people to record catches made throughout the year to assist with the annual recall effort. However, their greatest value appeared to be in their premium value as a token of appreciation for participating.

After the program was defined as above, a research protocol for the program was developed to provide a standard operating procedure, with ADF&G biometricians providing review and comments (Appendix 3).

In January of each survey year, selected households were contacted, provided with information about the project, and requested to participate. Households that agreed to participate were given a calendar. In the early part of the following year, participating households were contacted again to collect their catch information. Although the calendar was a good way to record catch information, most participants responded to the survey through recall, as they are in the habit of doing through normal conversations throughout the year.

Most of the surveys were completed in person between the field technician and the household representative, although some were dropped off to the respondents to be filled out and returned. Once field data collection was complete, data from the paper survey instruments was entered in a PC computer database.

Reported catch totals were calculated for species by summing the survey reports for all households. For 19 species commonly caught by a majority of the households, such as caribou and salmon, expanded estimates within each household grouping were calculated using formulas provided by ADF&G that multiplies the reported catch by the inverse of the sampling fraction. Estimates of edible pounds were calculated using conversion factors developed by the ADF&G Division of Subsistence. Expanded estimates were not calculated for 11 species (e.g. walrus and brown bear) normally caught in small numbers by a minority of the households, only reported totals were used (Tables 1-3). Expanding take on uncommonly caught animals based on ratios of surveyed to non-surveyed households will result in gross error of actual take with little or no confidence in the estimate.

Alex Whiting calculated the reported and expanded estimated catch totals for each stratum in each year. The data then were delivered to Jim Magdanz, who restructured the data, repeated the analyses, and calculated some additional statistics.

The Sample

In 2002 158 households were surveyed, 121 in 2003, and 108 in 2004. While the numbers dropped each year, in every year for each household category at least 33 or more households were surveyed. As expected, the high and medium-catch households took the majority of fish and wildlife. In an attempt to increase the accuracy of catch estimates, the samples in the high and medium groups were purposefully larger than the samples in the low catch group, especially in 2002. However, it appeared the larger samples in 2002 did not improve overall confidence, so the number of households sampled in the high and medium groups decreased in 2003 and again in 2004.

During the three years, a total of 227 households were surveyed. The percentage of households surveyed in any one category was highest at 77% in the 2002 High category and lowest at 12% in the Low category in both 2003 and 2004. The total number of households surveyed in relation to all possible households was highest the first year at 33% and lowest the last year at 23%, the second year fell in the middle at 26%. The annual samples are summarized in Table 1.

Findings

During the three study years, estimated total harvests varied from 1,401,325 pounds in 2002, to 892,782 pounds in 2003, to 1,022,847 pounds in 2004. Households harvested an average of 5,031 edible pounds of subsistence foods in 2002, 2,996 pounds in 2003, and 3,237 pounds in 2004 (Fig. 1). Five species – caribou, sheefish, bearded seal, chum salmon, and moose – accounted for about 90 percent of the harvest in each of the three study years.

Fish made up 40 to 55 percent of the total harvest by weight, followed by marine and land mammals comprising 20 to 29 percent each. Only about 1 percent of the annual catch was birds and their eggs. Annual marine mammal and bird catches were particularly consistent, with only a 100-pound per household range for marine mammals and a 4-pound per household range for birds (Table 2). The estimated average catch per household was about 1,000 pounds for land mammals, 1,000 pounds for marine mammals, and 1,200 to 2,800 pounds for fish.

Some key findings included:

- Caribou were the most widely caught out of all fish and wildlife available, reported by 69 percent to 85 percent of all households. Moose were caught by about a quarter of all households.

- After caribou, sheefish and chum salmon were the most commonly caught species, with 59 to 79 percent of the households reporting sheefish and 55 to 78 percent of the households reporting chum salmon. Trout were caught by about half of all households. Twenty percent reported catching king crab.
- Bearded seals were the most commonly caught marine mammal; 40 to 47 percent of the households caught bearded seals each year. Seventeen to 33 percent of households took spotted seals, while ringed seals are reported by about 10% of households.
- Ducks were reported by 36 to 49 percent of the households. A quarter to a third of the households reported Canada and white-fronted geese, while 14 to 19 percent report taking snow geese and brant.
- Wolf and wolverine were reported by 2 to 6 percent of all respondents, while lynx were reported by 1 to 2 percent.
- A third of all households gathered seagull eggs. About 10% gathered duck and goose eggs.

The 2002 estimated total harvest was 57 percent greater than in 2003, and 37 percent greater than in 2004; the result of much higher estimated fish harvests and slightly higher land mammal harvests by surveyed households in 2002. Marine mammal harvest estimates changed little in the three survey years.

The substantially higher estimated catches in 2002 were concentrated among the major species. That is, in 2002 the estimated catches of nine of the top ten species (by edible weight) were greater than the average estimated catches in the other two years. Sheefish in 2002 accounted for 465,540 pounds, compared with an average of 217,162 pounds in 2003 and 2004. Likewise, chum salmon catches in 2002 were 56 percent greater than in the other two years, and caribou harvests were 31 percent greater. At the other end of the scale, minor species like trout and geese were about 25 percent less in 2002 than in the other two years. These results do not mean that there was less actual harvest in 2003 and 2004; only they reflect the fact that a few households that harvest a great majority by weight of the total fish catch were surveyed in 2002 and not included in the two following years through random chance.

Discussion

Attempting to estimate harvests of fish and animals in western Alaska's regional centers – Kotzebue, Barrow, Bethel, Nome, Dillingham – is difficult. Regional centers include long-term resident Alaska Native families, Alaska Native immigrants from surrounding villages, and non-Native immigrants from elsewhere in Alaska and the lower 48 states. In regional centers, many households harvest little or no wild foods, while other households harvest thousands of pounds of wild foods. To deal with this variation in harvest levels, simple random samples of regional center populations must be large. Alternatively, as in this study, stratified random samples can help improve estimates.

Comprehensive surveys of Kotzebue have been conducted only twice (Georgette 1992, Fall and Utermohle 1995). Both of those efforts documented harvests in a single year. For 1986, Georgette estimated an average harvest of 1,395 pounds per household. For 1991, Fall and Utermohle estimated 2,674 pounds per household. Georgette used a stratified sample, similar to that used in this project, but included non-Native as well as Native households. Fall and Utermohle's effort was a re-survey of a ten-year-old sample, which biased the sample towards long-term households and at least partially explains the higher estimate in 1992. Figure 5 compares the average household harvests reported in the five surveys.

The average household harvests estimated in this study – 5,031 pounds in 2002, 2,996 pounds in 2003, and 3,237 pounds in 2004 – were higher than those reported in any previous study. That was not unexpected, as this project included only Native households that were members of the Native Village of Kotzebue. In 1986, Georgette found that, on the average Native households harvested five times as much wild food as non-Native households in Kotzebue (1986:182). Georgette also found that four species – caribou, bearded seal, sheefish, and chum salmon – contributed 74 percent of the total harvest. In this project, those same four species contributed 82 to 90 percent of the total harvest (Figure 6).

These results do not include many species of small fish, birds and animals that are harvested, which include: saffron cod, smelt, herring, cisco, whitefish, king salmon, northern pike, grayling, burbot, ptarmigan, hares, porcupine, and other species which are rarely caught, or caught in small numbers. Some of the above are taken in quantity, especially the whitefish, smelt, saffron cod, ptarmigan and hares. This catch is normally shared widely within the community, as are many of the species surveyed. Because the pounds per family and household, is averaged out and includes species that comprise 99 percent of the community harvest by weight, the results will still give a valid minimum amount of annual pounds of catch without including the listed species above. Georgette 1992, Fall and Utermohle 1995, did include these species and found that they had little effect on the overall harvest level results.

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TABLE 1. NUMBER OF HOUSEHOLDS SURVEYED, 2002-2004

	Sampling Strata			All Households
	High Harvesting Households	Medium Harvesting Households	Low Harvesting Households	
2002 Survey				
Total Number of IRA Member Households	90	92	298	480
Number of IRA Households Surveyed	69	49	40	158
Percentage Of Households Surveyed	77 %	53 %	13 %	33 %
Expansion Factor	1.30	1.88	7.45	
2003 Survey				
Total Number of IRA Member Households	89	90	292	471
Number of IRA Households Surveyed	54	33	34	121
Percentage Of Households Surveyed	61 %	37 %	12 %	26 %
Expansion Factor	1.65	2.73	8.59	
2004 Survey				
Total Number of IRA Member Households	89	90	292	471
Number of IRA Households Surveyed	36	36	36	108
Percentage Of Households Surveyed	40 %	40 %	12 %	23 %
Expansion Factor	2.47	2.50	8.11	

TABLE 2. REPORTED, ESTIMATED, AND AVERAGE CATCH, 2002-2004

Resource	2002		2003		2004		Average All Years	
	Number Reported	Number Estimated	Number Reported	Number Estimated	Number Reported	Number Estimated	Number Reported	Number Estimated
Land Mammals								
Moose	41	102	37	94	27	95	35	97
Caribou	1,215	2,376	618	1,719	590	1,915	808	2,003
Sheep	4	4	3	3	2	2	3	3
Brown Bear	8	8	1	1	1	1	3	3
Black Bear	1	1	0	0	3	3	1	1
Land Mammals Sum	1,269	2,491	659	1,816	623	2,016	850	2,108
Marine Mammals								
Beluga	14	14	10	10	8	8	11	11
Walrus	2	2	3	3	16	16	7	7
Bearded Seal	258	533	178	508	164	486	200	509
Ringed Seal	187	265	60	121	27	67	91	151
Spotted Seal	205	532	178	351	96	267	160	383
Ribbon Seal	1	1	3	3	2	2	2	2
Polar Bear	0	0	1	1	1	1	1	1
Marine Mammals Sum	667	1,347	433	996	314	847	471	1,064
Birds								
Ducks	917	2,305	630	2,024	522	2,101	690	2,143
Canadian Geese	401	982	237	781	371	1,270	336	1,011
Snow Geese	111	247	163	394	55	272	110	304
White-Fronted Geese	222	386	234	624	150	462	202	491
Swan	20	36	18	50	13	38	17	41
Crane	22	45	21	59	13	38	19	47
Snowy Owl	5	5	0	0	0	0	2	2
Brant	165	317	216	479	102	371	161	389
Birds Sum	1,863	4,324	1,519	4,411	1,226	4,552	1,536	4,429
Fur Animals								
Wolf	16	16	12	12	22	22	17	17
Wolverine	11	11	13	13	20	20	15	15
Lynx	8	8	1	1	1	1	3	3
Fur Animals Sum	35	35	26	26	43	43	35	35
Fish								
Chum Salmon	22,715	36,748	7,834	19,717	8,987	27,448	13,179	27,971
Trout (Dolly Varden)	1,790	4,023	1,900	5,606	1,456	5,541	1,715	5,057
Sheefish	27,077	41,790	8,189	16,963	7,747	22,024	14,338	26,926
King Crab	-	-	-	-	2,366	6,306	2,366	6,306
Fish Sum	51,582	82,561	17,923	42,287	20,556	61,320	30,020	62,056
Eggs								
Gull Eggs	1,774	3,166	1,513	4,373	1,024	3,123	1,437	3,554
Goose Eggs	154	242	255	660	153	386	187	429
Duck Eggs	92	160	182	525	23	57	99	247
Eggs Sum	2,020	3,568	1,950	5,558	1,200	3,566	1,723	4,230

TABLE 3. REPORTED AND ESTIMATED CATCH, 2002

Resource	Households	Reported Total Harvest		Harvest Data Expanded	Estimated Total Harvest By IRA Member Households		Average	95 %
	Harvesting Percentage	(Number)	(Pounds)		(Number)	(Pounds)	Household Harvest (Pounds)	Confidence Interval (± %)
Land Mammals								
Moose	25%	41	22,058	Yes	102	55,000	139.6	27%
Caribou	85%	1,215	165,240	Yes	2,376	323,156	1,045.8	24%
Sheep	3%	4	416	No	4	416	2.6	-
Brown Bear	5%	8	0	No	8	0	0.0	-
Black Bear	1%	1	88	No	1	88	0.6	-
Land Mammals Sum		1,269	187,802		2,491	378,660	1,188.6	25%
Marine Mammals								
Beluga	7%	14	13,930	No	14	13,930	88.2	-
Walrus	1%	2	1,540	No	2	1,540	9.7	-
Bearded Seal	47%	258	108,360	Yes	533	223,790	685.8	29%
Ringed Seal	16%	187	13,838	Yes	265	19,638	87.6	60%
Spotted Seal	33%	205	20,090	Yes	532	52,109	127.2	38%
Ribbon Seal	1%	1	0	No	1	0	0.0	-
Polar Bear	0%	0	0	No	0	0	0.0	-
Marine Mammals Sum		667	157,758		1,347	311,007	998.5	31%
Birds								
Ducks	49%	917	1,724	Yes	2,305	4,334	10.9	24%
Canadian Geese	34%	401	1,371	Yes	982	3,359	8.7	34%
Snow Geese	14%	111	443	Yes	247	986	2.8	79%
White-Fronted Geese	26%	222	941	Yes	386	1,636	6.0	36%
Swan	7%	20	224	Yes	36	406	1.4	62%
Crane	9%	22	149	Yes	45	304	0.9	54%
Snowy Owl	1%	5	14	No	5	14	0.1	-
Brant	15%	165	376	Yes	317	723	2.4	56%
Birds Sum		1,863	5,242		4,324	11,761	33.2	37%
Fur Animals								
Wolf	5%	16	0	No	16	0	0.0	-
Wolverine	3%	11	0	No	11	0	0.0	-
Lynx	2%	8	0	No	8	0	0.0	-
Fur Animals Sum		35	0		35	0	0.0	-
Fish								
Chum Salmon	78%	22,715	136,290	Yes	36,748	220,490	862.6	53%
Trout (Dolly Varden)	56%	1,790	5,907	Yes	4,023	13,276	37.4	27%
Sheefish	79%	27,077	301,638	Yes	41,790	465,540	1,909.1	44%
Fish Sum		51,582	443,835		82,561	699,306	2,809.1	46%
Eggs								
Gull Eggs	27%	1,774	284	Yes	3,166	507	1.8	0%
Goose Eggs	9%	154	39	Yes	242	60	0.2	75%
Duck Eggs	5%	92	14	Yes	160	24	0.09	80%
Eggs Sum		2,020	336		3,568	591	2.1	11%
Grand Total		57,436	794,973		94,326	1,401,325	5,031.5	37%

TABLE 4. REPORTED AND ESTIMATED CATCH, 2003

Resource	Households	Reported Total Harvest		Harvest Data Expanded	Estimated Total Harvest		Average Household Harvest (Pounds)	95 % Confidence Interval (± %)
	Harvesting Percentage				By IRA Member Households	(Number)		
Land Mammals								
Moose	21%	37	19,906	Yes	94	50,396	164.5	47%
Caribou	69%	618	84,048	Yes	1,719	233,735	694.6	19%
Sheep	2%	3	312	No	3	312	2.6	-
Brown Bear	1%	1	0	No	1	0	0.0	-
Black Bear	0%	0	0	No	0	0	0.0	-
Land Mammals Sum		659	104,266		1,816	284,443	861.7	24%
Marine Mammals								
Beluga	5%	10	9,950	No	10	9,950	82.2	-
Walrus	2%	3	2,310	No	3	2,310	19.1	-
Bearded Seal	40%	178	74,760	Yes	508	213,309	617.9	34%
Ringed Seal	11%	60	4,440	Yes	121	8,949	36.7	71%
Spotted Seal	17%	178	17,444	Yes	351	34,355	144.2	68%
Ribbon Seal	2%	3	0	No	3	0	0.0	-
Polar Bear	1%	1	0	No	1	0	0.0	-
Marine Mammals Sum		433	108,904		996	268,874	900.0	40%
Birds								
Ducks	36%	630	1,184	Yes	2,024	3,805	9.8	33%
Canadian Geese	26%	237	811	Yes	781	2,672	6.7	39%
Snow Geese	18%	163	650	Yes	394	1,573	5.4	54%
White-Fronted Geese	24%	234	992	Yes	624	2,645	8.2	42%
Swan	11%	18	202	Yes	50	561	1.7	61%
Crane	8%	21	142	Yes	59	396	1.2	73%
Snowy Owl	0%	0	0	No	0	0	0.0	-
Brant	19%	216	492	Yes	479	1,093	4.1	79%
Birds Sum		1,519	4,473		4,411	12,745	37.0	23%
Fur Animals								
Wolf	3%	12	0	No	12	0	0.0	-
Wolverine	2%	13	0	No	13	0	0.0	-
Lynx	1%	1	0	No	1	0	0.0	-
Fur Animals Sum		26	0		26	0	0.0	-
Fish								
Chum Salmon	55%	7,834	47,004	Yes	19,717	118,304	388.5	42%
Trout (Dolly Varden)	45%	1,900	6,270	Yes	5,606	18,500	51.8	44%
Sheefish	59%	8,189	91,225	Yes	16,963	188,973	753.9	59%
Fish Sum		17,923	144,499		42,287	325,777	1,194.2	52%
Eggs								
Gull Eggs	30%	1,513	242	Yes	4,373	700	2.0	0%
Goose Eggs	12%	255	64	Yes	660	165	0.5	69%
Duck Eggs	10%	182	27	Yes	525	79	0.23	68%
Eggs Sum		1,950	333		5,558	943	2.8	18%
Grand Total		22,510	362,476		55,095	892,782	2,995.7	39%

TABLE 5. REPORTED AND ESTIMATED CATCH, 2004

Resource	Households	Reported Total Harvest		Harvest Data Expanded	Estimated Total Harvest By IRA Member Households		Average	95 %
	Harvesting Percentage	(Number)	(Pounds)		(Number)	(Pounds)	Household Harvest (Pounds)	Confidence Interval (± %)
Land Mammals								
Moose	22%	27	14,526	Yes	95	51,215	134.5	37%
Caribou	76%	590	80,240	Yes	1,915	260,459	743.0	20%
Sheep	2%	2	208	No	2	208	1.9	-
Brown Bear	1%	1	0	No	1	0	0.0	-
Black Bear	2%	3	264	No	3	264	2.4	-
Land Mammals Sum		623	95,238		2,016	312,146	881.8	23%
Marine Mammals								
Beluga	5%	8	7,960	No	8	7,960	73.7	-
Walrus	3%	16	12,320	No	16	12,320	114.1	-
Bearded Seal	40%	164	68,880	Yes	486	204,272	637.8	32%
Ringed Seal	6%	27	1,998	Yes	67	4,952	18.5	85%
Spotted Seal	19%	96	9,408	Yes	267	26,161	87.1	70%
Ribbon Seal	2%	2	0	No	2	0	0.0	-
Polar Bear	1%	1	0	No	1	0	0.0	-
Marine Mammals Sum		314	100,566		847	255,664	931.2	37%
Birds								
Ducks	41%	522	981	Yes	2,101	3,950	9.1	35%
Canadian Geese	33%	371	1,269	Yes	1,270	4,343	11.7	49%
Snow Geese	14%	55	219	Yes	272	1,085	2.0	62%
White-Fronted Geese	22%	150	636	Yes	462	1,959	5.9	49%
Swan	8%	13	146	Yes	38	425	1.3	70%
Crane	6%	13	88	Yes	38	256	0.8	90%
Snowy Owl	0%	0	0	No	0	0	0.0	-
Brant	16%	102	233	Yes	371	846	2.2	68%
Birds Sum		1,226	3,572		4,552	12,864	33.1	24%
Fur Animals								
Wolf	6%	22	0	No	22	0	0.0	-
Wolverine	3%	20	0	No	20	0	0.0	-
Lynx	1%	1	0	No	1	0	0.0	-
Fur Animals Sum		43	0		43	0	0.0	-
Fish								
Chum Salmon	68%	8,987	53,922	Yes	27,448	164,689	499.3	44%
Trout (Dolly Varden)	56%	1,456	4,805	Yes	5,541	18,287	44.5	41%
Sheefish	63%	7,747	86,302	Yes	22,024	245,352	799.1	80%
King Crab	19%	2,366	4,969	Yes	6,306	13,242	46.0	65%
Fish Sum		20,556	149,997		61,320	441,569	1,388.9	48%
Eggs								
Gull Eggs	26%	1,024	164	Yes	3,123	500	1.5	50%
Goose Eggs	10%	153	38	Yes	386	97	0.4	78%
Duck Eggs	3%	23	3	Yes	57	9	0.03	136%
Eggs Sum		1,200	206		3,566	605	1.9	56%
Grand Total		23,962	349,578		72,343	1,022,847	3,236.8	37%

FIGURE 1. AVERAGE HOUSEHOLD CATCH BY CATEGORY, 2002- 2004

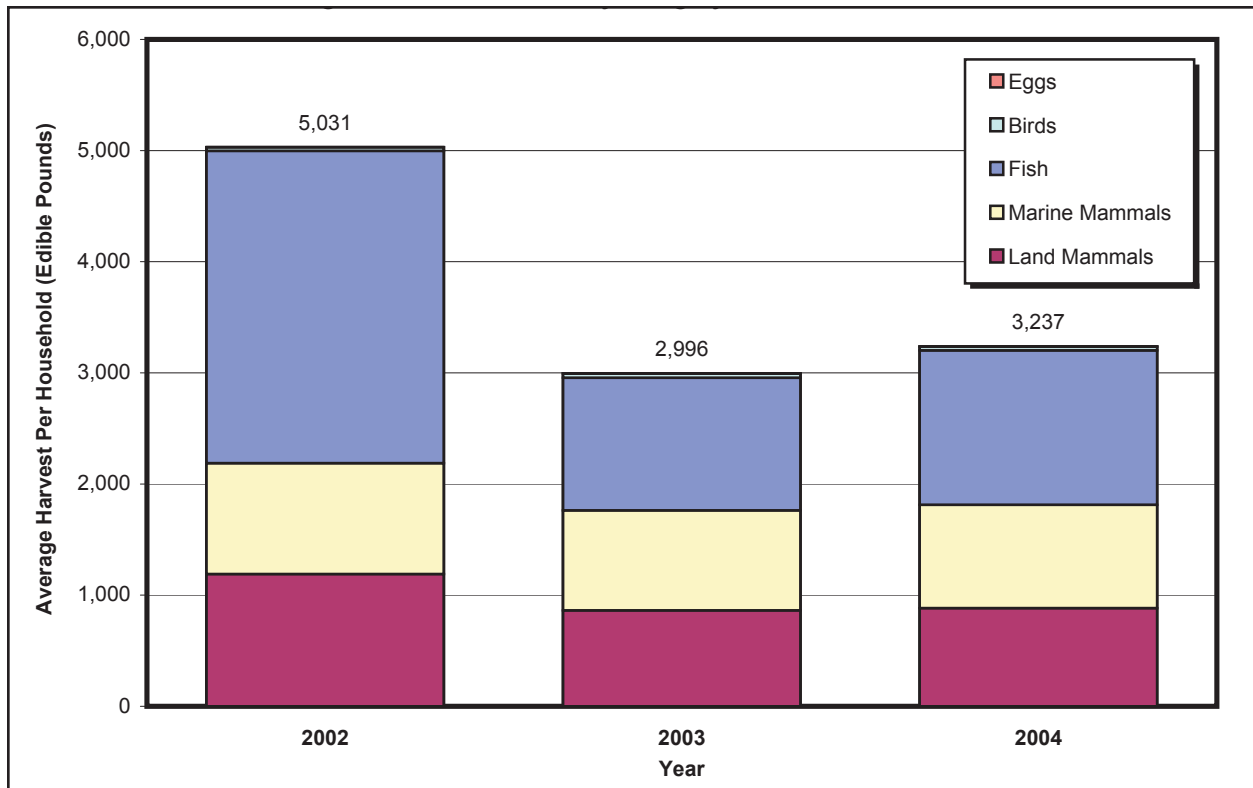


FIGURE 2. COMPOSITION OF TOTAL CATCH IN POUNDS, 2002-2004

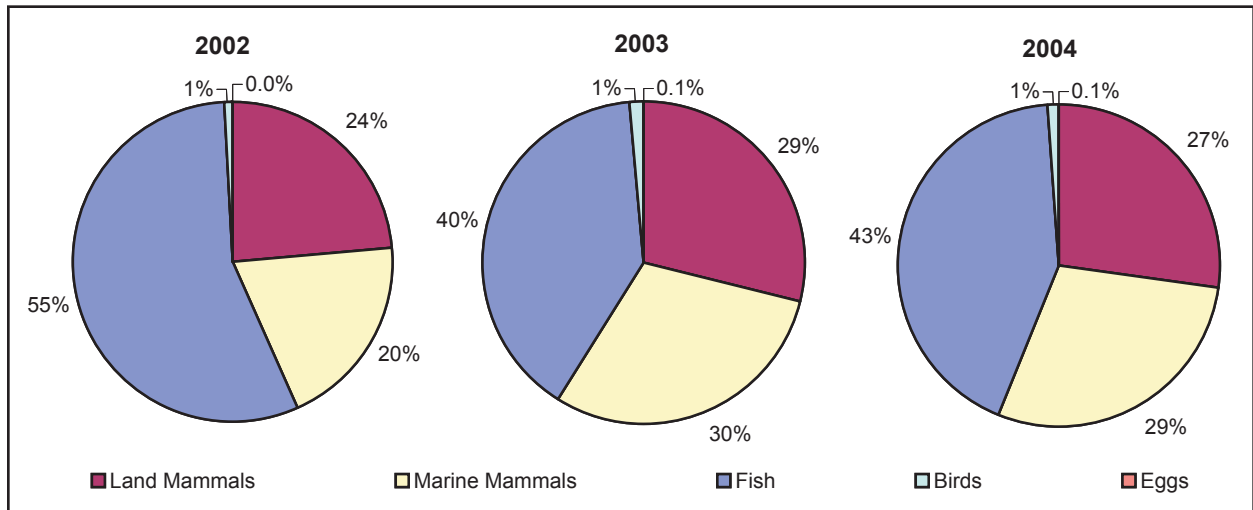


FIGURE 3. REPORTED AND ESTIMATED TOTAL CATCH IN 3 MAJOR CATEGORIES, 2002-2004

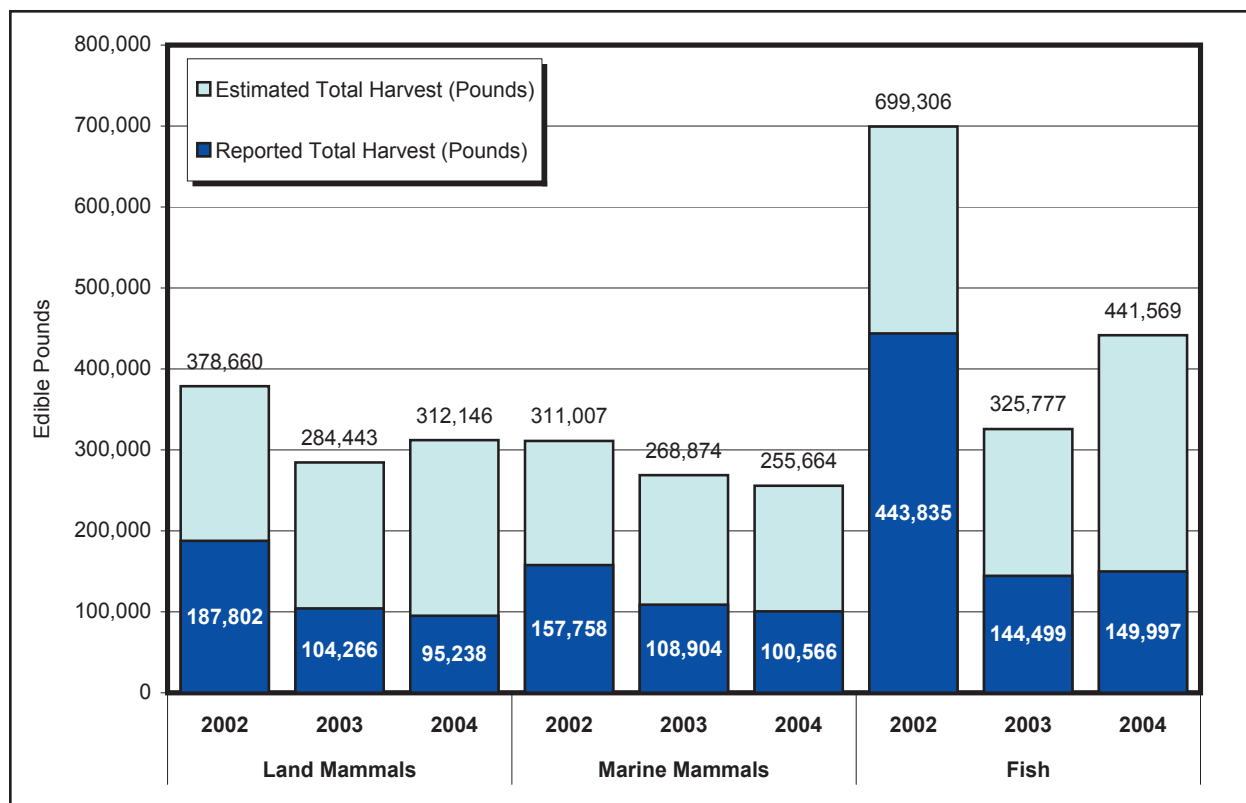


FIGURE 4. ESTIMATED TOTAL CATCH IN 3 MAJOR CATEGORIES, WITH CONFIDENCE INTERVALS, 2002-2004

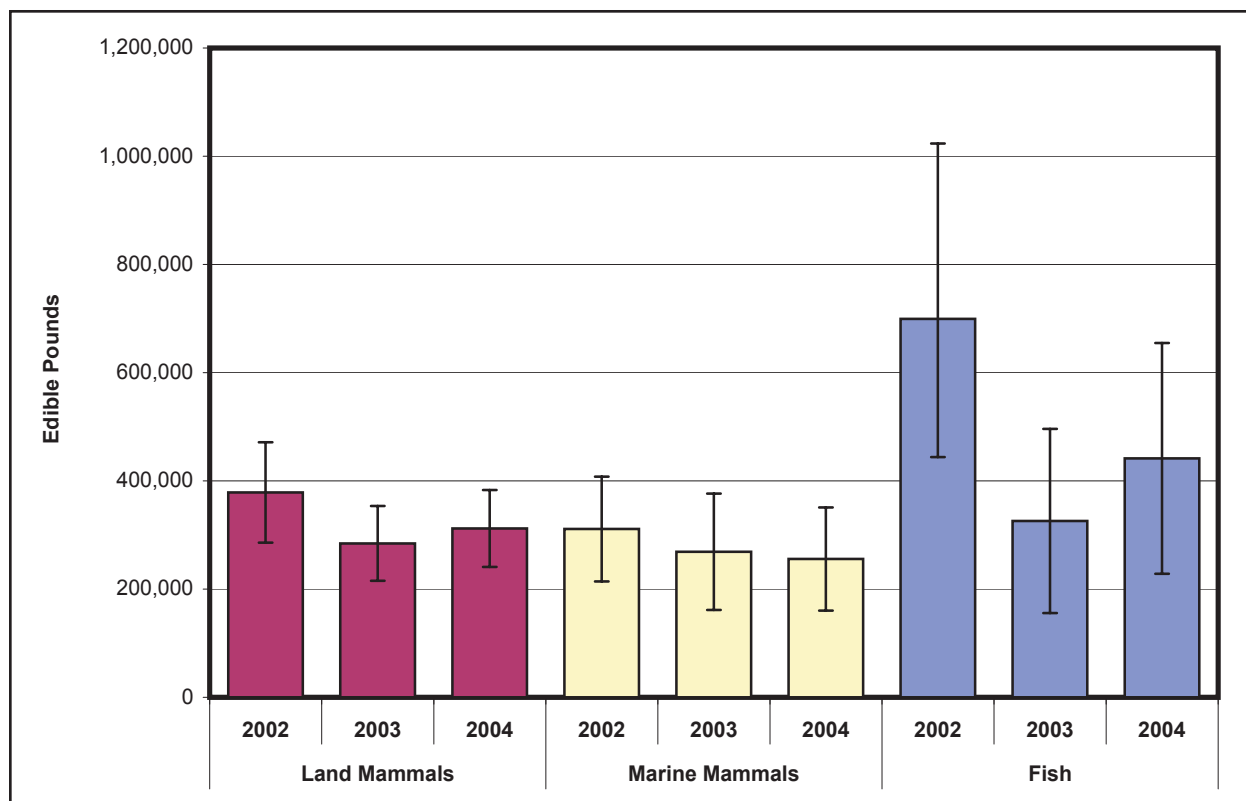


FIGURE 5. ESTIMATED CATCH, KOTZEBUE, 1986, 1991, AND 2002-2004

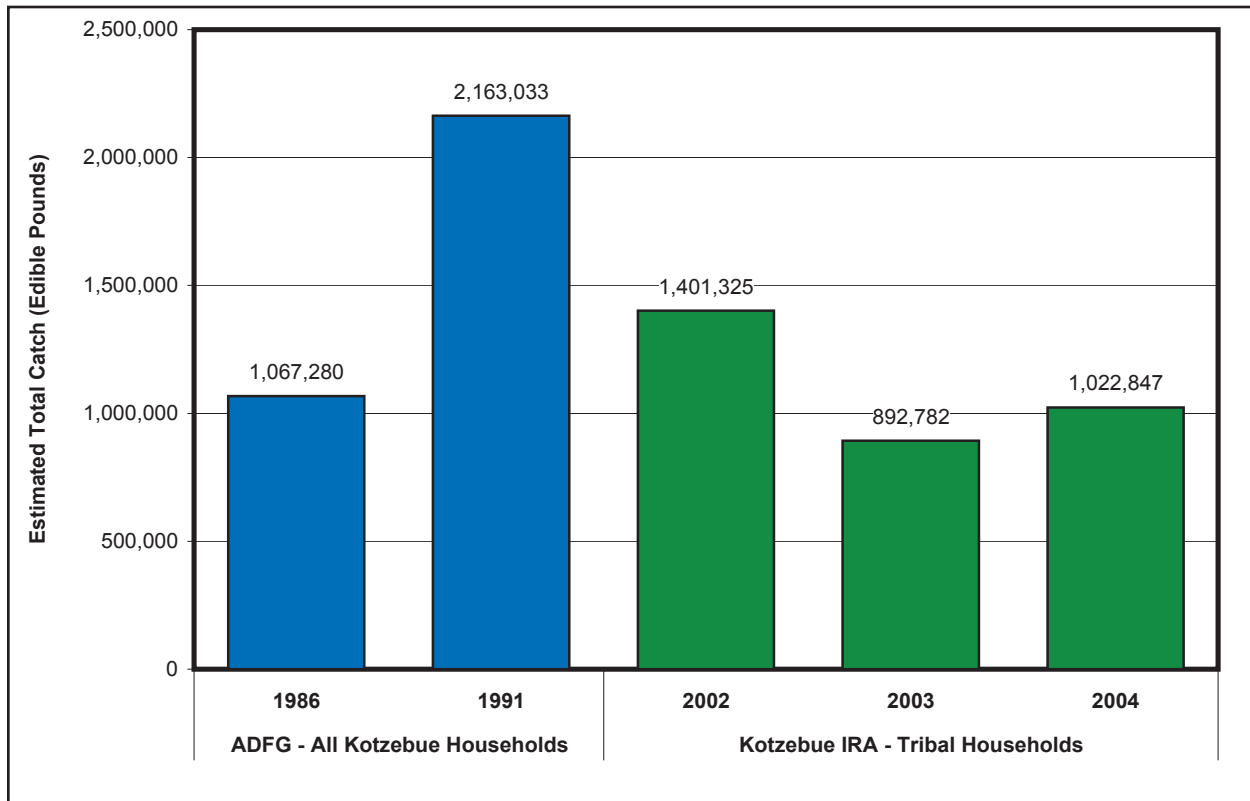
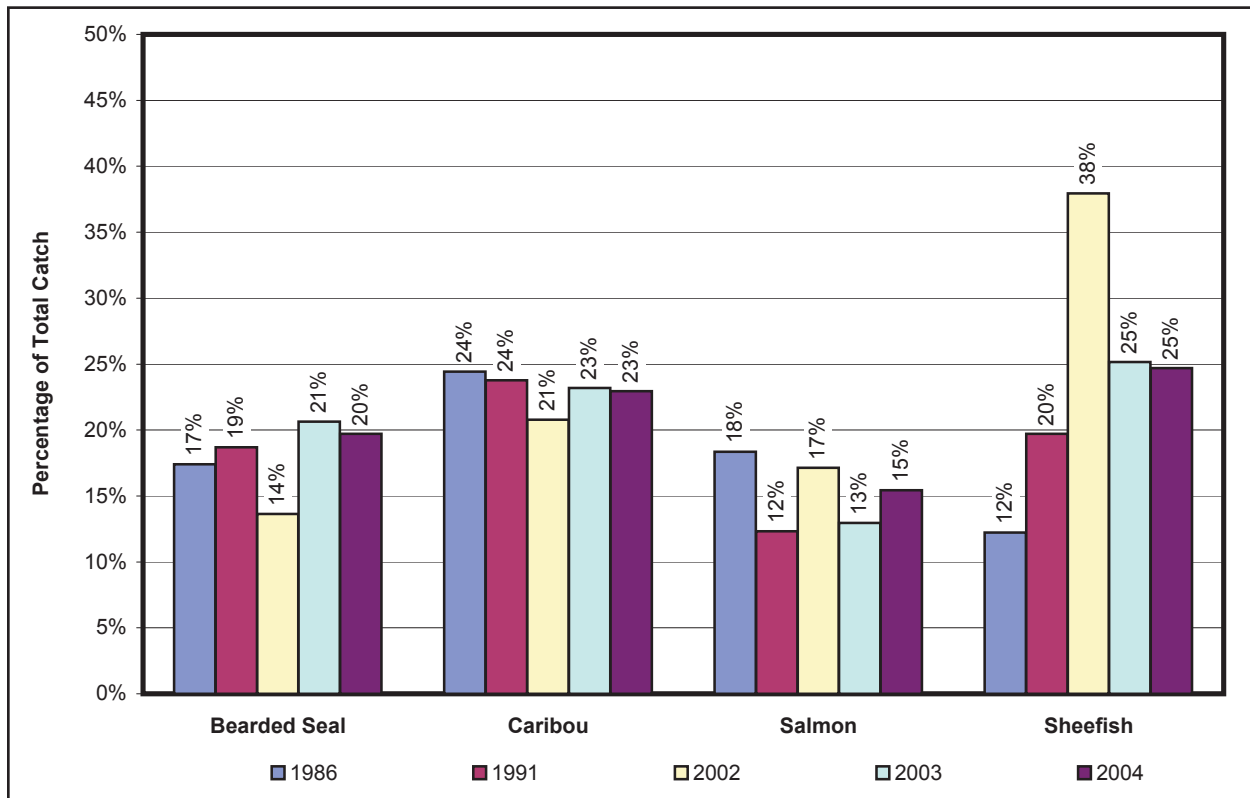


FIGURE 6. PROPORTIONS OF FOUR MAJOR SPECIES IN FIVE SURVEY YEARS



Appendix 1: Harvest Category Questionnaire

Kotzebue IRA – Member Harvest Survey – Use Category Determination

The Kotzebue IRA is beginning an effort to document the actual amounts of food harvested by our members. This information will be anonymous and used in the future to fight for allocation of resources on behalf of the Qikiktagrugmiut. All members possible will be surveyed initially to determine their level of harvest, this information will be used during the next part of the effort with a percentage of each user level being asked to keep track of their harvest during the calendar year.

Thank you for your participation and support of our Tribe.

(1) Last year did your household catch at least ten (caribou) tuttu or five (seals) natchiq, qasigiaq, ugruk or 1,000 pounds of non-commercial (fish) aqaluk?

YES

NO

(2) Last year did your household catch at least five (caribou) tuttu or two (seals) natchiq, qasigiaq, ugruk or 500 pounds of non-commercial (fish) aqaluk?

YES

NO

Appendix 2: Harvest Survey Collection Form

Kotzebue IRA

P.O. Box 296

Kotzebue Ak, 99752

Ph 442-3467 Fax 442-2162

Harvest Survey

Land Mammals

Moose

Caribou

Sheep

Grizzly Bear

Black Bear

Fur Animals

Wolf

Wolverine

Lynx

Marine Mammals

Beluga

Walrus

Bearded Seal

Ringed Seal

Spotted Seal

Ribbon Seal

Polar Bear

Birds

Ducks

Canadian Geese

Snow Geese

Speckled Bellies

Swan

Crane

Snowy Owl

Brant

Fish

Chum Salmon

Trout

Shee-Fish

King Crab

Eggs

Seagull

Duck

Geese

ID#

Appendix 3: Harvest Survey Program Protocol

Native Village of Kotzebue Harvest Survey Program

1. Using city maps and membership listings, along with a technician with an intimate knowledge (from living here his entire life and driving cab for many years) of members, their families and residences, a survey of all houses, apartments and camps (households) in the vicinity of Kotzebue for residing adult members was completed. A list was created with all the house and apartment numbers and camps where members resided.
2. Attempt to contact all households (personal visit or phone) on residences list with the initial category questionnaire, consisting of: Your household caught more than 10 caribou, and/or 5 seals, and/or more than 1000 pounds of non-commercial fish? = High – Your household caught more than 5 caribou and/or 2 seals and/or 500 pounds of non-commercial fish = Medium – Your household caught less than the medium limits = low. Were able to contact all households with members currently living there at least once for this first categorization.
3. Using the responses received from the above survey all respondents were listed and grouped into the appropriate categories.
4. The plan is to try and get all or as many highs as we can and at least 30 of each the low and medium for a statistical sampling. Using a random number selector on excel program all the medium and low households were fed into the program and randomly sorted, we used the first 50 households in each category as the participants, these households were contacted the same as above. We used an “extra” 20 in each category so we could have a reasonable chance of getting at least 30 respondents reporting in each category at the end of the year. It is our understanding that 30 is a sufficient number to do a random sample.
5. Calendars were created and provided in December to the HH's selected for participation as a tool for recording daily/weekly/monthly-harvesting activity; actual recall would be done from memory. Many people do use the calendars; the rest seemed to have a pretty easy time remembering their harvest, especially the bigger game animals.
6. A survey instrument was developed listing all those available wildlife resources that currently have or may have in the future a significant management interest (e.g. include caribou, geese, but not rabbits, ptarmigan) – 30 different species or their eggs were listed. This sheet is used by the technician to record harvest levels for each surveyed species by each household participating. In January of the following year all households on the randomized list and the highs using the HH list and working from top to bottom are contacted and asked about their harvesting activity during the previous calendar year.
7. The program technician collects all of the responses mostly face to face, they can be left to be picked up later. If after a couple of contacts there is no response, the HH is listed as non-responsive and the next HH on the bottom of the list takes the place of that HH until between 30 and 40 HH's in each category are surveyed. The results were listed in the appropriate categories for the appropriate user groups and tallied.
8. These results are then weighted using the weighting formula provided by Kotzebue ADF&G subsistence division.
9. The weighted numbers are then rounded off using an even rounding formula - that is all number were rounded up or down based on 4 and lower and 6 and higher with the ones being 5 being rounded to the nearest even number (e.g. 18.5 = 18, 19.5 = 20)
10. The weighted rounded off numbers were then tallied and stored on each user group sheet with a grand total for all users being created.



The Native Village of Kotzebue is the Federally-recognized Tribal government representing the Qikiqtagrukmiut, the original inhabitants of the area of northwest Alaska surrounding modern day Kotzebue (Qikiqtagruk). The Tribe, a sovereign entity, is commonly called the Kotzebue IRA due to its organization pursuant to the 1934 Indian Reorganization Act and as amended for Alaska in 1936.

Membership of the Kotzebue IRA is estimated at 2500 persons, most of who belong to the original families of Qikiqtagruk, although native peoples from other Tribes are members of the Kotzebue IRA.

Kotzebue IRA
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