MEMORANDUM State of Alaska

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SUBJECT: Summary of Unit 9 1984 Spring Bear Hunter Questionnaire

Attached are the results of the spring bear hunter questionnaire. Again the return was suprisingly good, 80%. The economic question was answered by 91% of the respondents, laying to rest our concern that an economic question might reduce the overall response.

With a few exceptions the results were very similar to those from the fall questionnaire. The most informative result therefore, came from the economic question that suggests the 2 week spring hunt in Unit 9 was worth close to $2.0 million. Based on harvest alone, it appears brown bears in GMU 9 are "worth" about ten times more than moose, and three times more than caribou (food for thought but not for the stomach).

Summary of Unit 9 1984 Spring Bear Hunt Questionnaire

In July 1984 the attached questionnaire was mailed to 223 successful brown bear hunters who had hunted in Unit 9 during the spring 1984. A reminder letter was mailed to hunters who had not responded by mid-August. The final return was 80%, with 16% resulting from the reminder letter. Completed questionnaires were returned by 66 of 79 (84%) residents and by 114 of 144 (79%) non residents.

The 11% increase in harvest during the spring season compared to the fall was entirely due to increased take by resident hunters. Five residents were guided, 3 non residents were guided by next of kin, otherwise all non residents were guided and residents not guided. The final results are summarized below. Level of response to each question was variable, sample size (N) of valid responses is listed for each question.

1. Hunters saw an average of 8 bears each while hunting; however, on the average 6 of those bears were not legal. The frequency distribution of bear sightings was:

	% of Hunters Reporting	
Bears Seen	Nonguided	Guided
1-5	36	39
6-10	49	29
11-15	10	13
16-20	2	7
20	3	12
	100%	100%
	N = 61	N = 119

2. Fifty four percent (97 of 180) of the hunters reporting, saw females with offspring during their hunt. The frequency distribution of hunter reported litter sizes is given below. Resighting of some family groups by the same hunter and multiple sightings of a given family group by several hunters are undoubtedly included in the reported distribution:

43 hunters (24%)* reported a total of 57 females with 1 young
67 hunters (37%) reported a total of T19 females with 2 young
29 hunters (16%) reported a total of 34 females with 3 young
2 hunters (1%) reported a total of 2 females with 4 young

*Percentage refers to proportion of hunters returning questionnaires that reported seeing females with offspring in a given classification.

Mean litter size of hunter sighted litters was 1.91 cubs per female with cubs, the same as observed in aerial composition surveys.

3 &
4. Overall, 41% of the reporting hunters took or attempted to take the first legal bear they saw. Fifty-five percent of the non guided hunters took the first bear, 34% of the guided hunters. The number of bears passed up by successful hunters is given below.

No. of Bears Passed Up	% of Hunters Reporting	
	Non Guided	Guided
0	55	34
1	9	18
2	12	15
3	14	9
4	2	9
5	5	1
≥ 6	3	14
	100%	100%
	N = 58	N = 115

5. Most hunters (61%) reported they correctly estimated the size of their bear before they shot; 20% reported they had underestimated the bears size before shooting, 19% overestimated the size. The ability to estimate bear size at a distance was similar for guided and non guided hunters. When asked "after you shot your bear and examined it, was it larger, smaller, or about equal to the size you had estimated when preparing to shoot?" They responded as follows:

	% of Hunters Reporting	
	Non Guided	Guided
Smaller	22	17
Equal	63	61
Larger	15	22
	N = 59	N = 117

6,7
& 9 In questions 6, 7, and 9 hunters were presented with a list of factors or conditions and were asked to rank those factors as to their importance:

(a) in the decision to take the bear they killed,
(b) in the decision to hunt on the Alaska Peninsula and;
(c) in fulfilling their image of a satisfying bear hunt.

Five (8%) nonguided and 17 (14%) guided hunters expressed dissatisfaction with the bear they killed. Fourteen of those hunters felt their bear was to small, 4 gave poor coat condition as the primary reason for their dissatisfaction, 1 hunter was disappointed in taking a female, and 3 hunters gave no reason although they also took small bears. Mean skull sizes for dissatisfied hunters were 19.5" and 22.5", for non guided and guided hunters, respectively. However, 1 hunter felt his 26 11/16" bear was too small and another that his 24 1/4" females was too small.

Factors Affecting the Hunter's Decision to Take a Given Bear

Factors (in order of asking)	Non Guided			Guided		
	Mean* Rank ($\Sigma R_{ij}/n_j$)	Sample Size (n_j)	Ranking of Mean Ranks	Mean* Rank ($\Sigma R_{ij}/n_j$)	Sample Size (n_j)	Ranking of Mean Ranks
Coat condition	1.6	52	1	2.3	88	2
Coat color	2.3	52	3	3.1	83	4
Size	2.1	50	2	1.8	99	1
Guides recommend	n/a	n/a		2.4	86	3
Lack other opportunity	3.0	22	4	3.2	55	5

* R_{ij} = individual i's response to factor j.

One non guided hunter and 4 guided hunters reported they killed their bear because of a charge or fear of imminent charge.

Factors Affecting Hunter's Decision to Hunt on the Alaska Peninsula

Factors (in order of asking)	Non Guided			Guided		
	Mean* Rank ($\Sigma R_{ij}/n_j$)	Sample Size (n_j)	Ranking of Mean Ranks	Mean* Rank ($\Sigma R_{ij}/n_j$)	Sample Size (n_j)	Ranking of Mean Ranks
Wanted better coat condition	1.9	26	2	2.3	41	2
Wanted different coat color	2.9	22	3	3.1	35	3
Wanted a larger bear	1.4	37	1	1.1	79	1

* R_{ij} = individual i's response to factor j.

Other factors listed by hunters as influencing their decision to hunt on the Alaska Peninsula included:

Factor	Non Guided	Guided
Guide recommendation	0	16
High bear density	10	14
Wilderness character of the area	5	10

Elements Of A Satisfactory Bear Hunt

Elements (in order of asking)	Non Guided Mean Rank	Non Guided Sample Size	Non Guided Ranking of Mean Ranks	Guided Mean Rank	Guided Sample Size	Guided Ranking of Mean Ranks
Good weather	5.3	44	7	5.3	91	7
Scenery	5.1	49	5	5.0	93	6
Wilderness experience	3.5	51	3	3.5	94	3
Quality of bear	2.7	55	1	2.0	109	1
Just taking a bear	5.6	41	8	5.4	76	8
Number of bears seen	3.1	54	2	3.3	92	2
Amount of other game seen	5.2	52	6	4.9	87	5
Few other hunters	4.3	51	4	4.5	90	4
Opportunity for photographs	7.1	39	9	6.9	78	9

Asked whether they did or did not experience the various elements of a satisfactory bear hunt, hunters responded as follows:

Elements	% Of Hunters Reporting That Gave An Affirmative Response: Non Guided	Guided
Good weather	76 (42)	77 (84)
Scenery	100 (43)	99 (91)
Wilderness experience	94 (48)	98 (92)
Quality of bear	94 (48)	91 (106)
Number of bears seen	88 (99)	74 (87)
Amount of other game seen	91 (46)	85 (82)
Few other hunters	89 (44)	85 (88)
Opportunity for photographs	100 (33)	91 (76)

Fifteen percent of the responding hunters (N=180) had previously killed a bear in Alaska, only 1% (2 of 180) had previously killed a bear on the Alaska Peninsula.

8. When asked how often they would hunt on the Alaska Peninsula for brown bear if the 4 year rule was waived, sixty four percent of the non guided hunters and 61% of the guided hunters thought they would hunt brown bear more often than currently allowed. Their response was as follows:

How Often	% of Hunters Reporting Non Guided	Guided
Never again	26	26
Every year	16	6
Every other year	28	25
Every third year	20	30
4 years or more	3	7
Didn't know	7	6
	100% N = 61	100% N - 119

10. Question 10 was irrelevant to the spring bear hunt during which other seasons were closed.

11. Hunter's were asked to itemize and total their expenses for their Alaska Peninsula bear hunt. Values include all expenses, not just that money spent in Alaska. Ninety-one percent(163/180) of the hunters who returned questionnaires calculated the total cost of their hunt, an additional 4 percent itemized some of their expenses but were unable to give an accurate estimate of their total cost because some of their expenses were still pending (such as taxidermist fees). A breakdown of hunter expenses is given below.

	Non Guided Hunters Reported Cost	N	Mean Cost Per Hunter
Taxidermy	$ 50,934.00	56	$ 910.00
Air Fares	27,926.00	58	481.00
Food & Lodging	7,598.00	58	131.00
Equipment Cost	14,783.00	58	255.00
Misc. Costs (Souvenirs, tips, gifts,etc.)	9,085.00	58	157.00
License fees	3,265.00	58	56.00
Total Reported Costs*	112,881.00	56	2,016.00

*Because some questionnaires gave a partial list of itemized costs but not a total cost, itemized costs do not sum to the total cost figure.

	Guided Hunters		
	Reported Cost	N	Mean Cost Per Hunter
Taxidermy	$ 184,815.00	107	$ 1,727.00
Air Fare	133,651.00	112	1,193.00
Guide Fee	729,450.00	110	6,631.00
Food & Lodging	33,201.00	112	296.00
Cost of Equipment	42,445.00	112	379.00
Misc. Costs (Souvenirs, tips, gifts, etc.)	31,728.00	112	283.00
License Fees	44,875.00	114	394.00
Total Cost*	1,159,921.00	107	10,840.00

*Because some questionnaires gave a partial list of itemized costs, but not total cost, itemized costs do not sum to the total cost figure.

Total reported cost was $1,272,820 for the 163 reporting hunters; a mean of $7,809.00 per hunter. Expanding for all 223 successful hunters yields an estimate of $1.74 million. Considering additional expenses for unsuccessful hunters, the total economic value of the spring 1984 bear season on the Alaska Peninsula was probably close to 2 million dollars.

Combined information from the sealing forms and from the questionnaires was used to further characterize the spring bear hunt.

Both male and female mean skull sizes of bears taken by guided hunters were significantly larger than those taken by non guided hunters (t-test; males $p < .01$, females $p < .001$). However, there was no apparent correlation between skull sizes and hunter effort, measured both as days hunted, and as number of bears passed up (Table 1 and 2).

Table 1. Mean hunter effort, and correlation coefficients for guided hunter effort vs. skull size.

Hunter Effort Based On:	Sample Size N	Correlation Coefficient r	Mean Guided Hunter Effort and Skull Size* $\bar{x}(s\bar{x})$	$\bar{y}(s\bar{x})$
Days hunted for males	84	-0.07	5.3(0.4)	25.1(0.2)
Days hunted for females	26	0.20	6.0(0.7)	22.2(0.2)
No. bears passed up for males	83	0.07	2.4(0.3)	25.0(0.2)
No. bears passes up for female	27	-0.09	4.3(1.0)	22.2(0.2)

x= hunter effort; y=skull size.

Table 2. Mean hunter effort, and correlation coefficients for non guided hunter effort vs. skull size.

Hunter Effort Based On:	Sample Size N	Correlation Coefficient r	Mean Non Guided Hunter Effort and Skull Size* $\bar{x}(s\bar{x})$	$\bar{y}(s\bar{y})$
Days hunted for males	33	-0.05	5.0(0.6)	23.6(0.4)
Days hunted for females	22	0.01	4.6(0.8)	21.5(0.3)
No. bears passed up for males	33	0.12	1.7(0.4)	23.6(0.4)
No. bears passed up for females	23	-0.02	0.9(0.3)	21.4(0.3)

* x= hunter effort; y = skull size

Guided hunters were more likely to take a male than non guided, (chi square $p < .025$). Seventy-six percent of the guided harvest were males, 58% of the non guided harvest were males. Chronolgical distribution of the harvest was relatively constant for guided hunters, 53% of the guided harvest was taken during the first 1/2 of the season. Non guided hunters harvested more bears early in the season, 64% of the non guided harvest occurred before mid-season.

Results of the spring questionnaire were, with 2 exceptions, similar to those from the fall questionnaire. During the fall hunt, 71% of the hunters reported seeing females with offspring, during the spring hunt only 54% reported females with young. However, mean reported litter sizes were almost identical for both seasons (1.96 and 1.91 respectively). The lower incidence of litter sightings in the spring is consistent with biological information which shows females with young remain in or around their dens longer than single bears during the spring emergence period.

The second major difference between the spring and fall questionnaire results was in the distribution of hunters who took their first opportunity to kill a bear. Overall, 43% of the fall hunters and 41% of the spring hunters took their first opportunity to kill a legal bear, however during the fall more guided hunters than non guided hunters took their first bear (47% of guided, 38% of non guided) but during the spring the results were reversed (34% guided, 55% non guided). One possible explaination is that guided hunters in the fall were interested in pursuing other game (caribou, waterfowl), while spring hunters were only after bear.