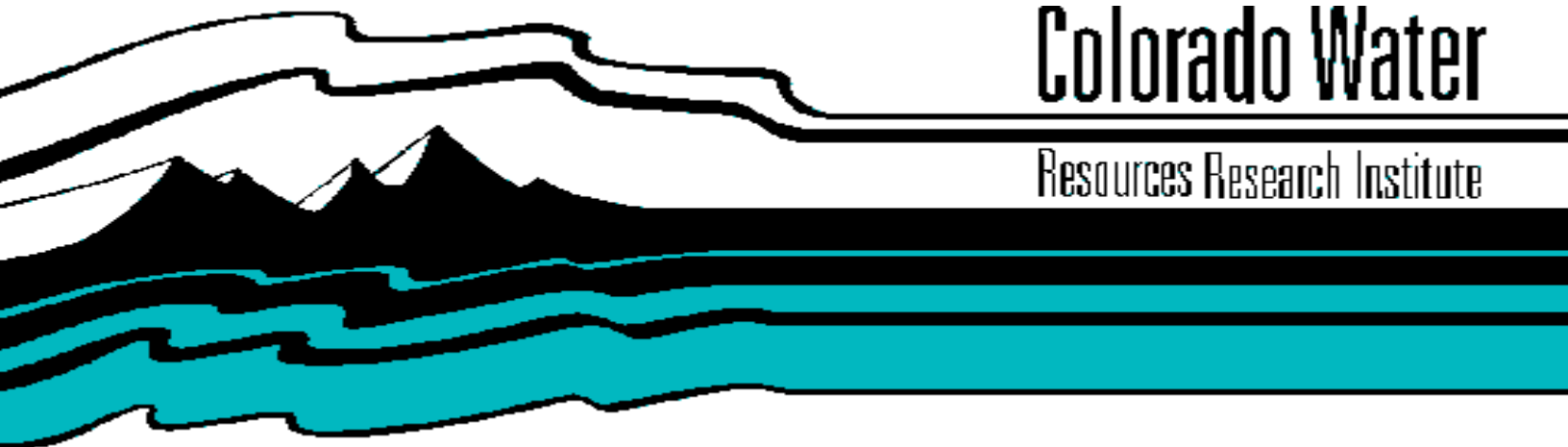


**Sportsmen Expenditures  
For Hunting and Fishing  
In Colorado-1981**

**By John R. McKean  
Kenneth C. Nobe**

**January 1983**

**Technical Report No. 39**



**Colorado Water**

Resources Research Institute

**Colorado  
State  
University**

1981 Colorado Sportsman Survey

SPORTSMEN EXPENDITURES FOR HUNTING AND  
FISHING IN COLORADO

By

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Contract Report for

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## FOREWORD AND ACKNOWLEDGMENTS

This report on Colorado sportsmen expenditures during 1981 was completed by the Department of Economics at Colorado State University under contract with the Colorado Division of Wildlife. This is the first in a series of reports on sportsman spending, economic impacts of hunting and fishing and sportsman willingness to pay based on the 1981 Colorado Sportsman Survey. The data summarized herein provide the first comprehensive estimates of Colorado sportsmen expenditures since a similar survey was made in 1973. The first study of this nature was for 1968. During the intervening years, significant changes have occurred in a number of factors directly or indirectly affecting wildlife management decisions. These include both general shifts in economic conditions, land-use planning activities, environmental controls, energy and urban land use developments, population growth and redistribution plus outright changes in spending patterns, outdoor recreation activities, and preferences. Thus, the need for updated sportsmen expenditure estimates in Colorado has become acute. Completion of this report will help meet this informational void.

The authors are grateful to more than 3,500 resident and non-resident Colorado sportsmen who took the time to complete our questionnaire and return it, thus providing the data on which the report is based. Appreciation is extended to the Colorado Division of Wildlife, for continued support and cooperation throughout the course of this study.

The completion of this study would not have been possible without the assistance of numerous students who participated in sampling,

mailing, sorting and coding some 3,000 questionnaires. Appreciation is extended to them and to the keypunchers who were responsible for key-punching over 50,000 data processing cards representing over 800,000 pieces of information. Fekru Debebe and Jeannette Guth gave indispensable help in organizing the data and processing the data through the University computer.

John R. McKean

Kenneth C. Nobe

Fort Collins, Colorado

November, 1982



## CHAPTER I

### INTRODUCTION

The purpose of this report is to provide the Colorado Division of Wildlife with current data on annual sportsmen direct expenditures in Colorado. The base years for data collection were 1980 - 1981. The results of this survey will be useful in assisting wildlife officials and planners in adopting strategies for effective wildlife management in Colorado in response to changing hunting and fishing activity patterns.

The findings reported in this study are the first comprehensive estimates made of Colorado sportsmen expenditures since 1973, when the Department of Economics at Colorado State University completed a similar survey. The first study of sportsmen expenditures was conducted by the Department of Economics at Colorado State University for 1968.<sup>1</sup>

The objectives of the 1981 survey are as follows:

1. To provide estimates of total direct sportsmen expenditures by major wildlife species for 1981;
2. To provide estimates of the geographic distribution of sportsmen expenditures in Colorado for 1981;
3. To provide comparisons of changing patterns of sportsmen expenditures since 1968 and 1973.

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<sup>1</sup>Kenneth C. Nobe and Alphonse H. Gilbert, A Survey of Sportsmen Expenditures for Hunting and Fishing in Colorado, 1968 (Denver: Colorado Division of Game, Fish, and Parks, in cooperation with the Department of Economics, Colorado State University, Technical Publication 24, March 1970). Lee Ann Ross, Dwight M. Blood, and Kenneth C. Nobe, A Survey of Sportsmen Expenditures For Hunting and Fishing in Colorado, 1973, Contract Report for the Colorado Division of Wildlife, Department of Economics, Colorado State University, Fort Collins, Colorado, April, 1975.

The basic distinctions between the 1968, the 1973, and the 1981 survey data are as follows:

1. The 1981 Survey includes expenditure data for six wildlife species or activities, and the 1968 survey reported data for nine such species or activities. The detailed disaggregation of minor game species was eliminated in the 1981 survey in order to allow expansion of the questionnaire to elicit added socio-economic information and new willingness-to-pay data.
2. The 1981 and 1973 reports include expenditure data for 13 geographic planning areas in Colorado, while the 1968 data were limited to statewide estimates. The 1981 survey included many questions relating to sportsmen willingness-to-pay and socio-economic characteristics. These data will be reported in subsequent publications.
3. The 1973 survey did not, however, include basic data on socio-economic characteristics of hunters and fishermen, so that these characteristics cannot be compared with the socio-economic data included in the 1981 or the 1968 survey.

#### Survey Methods

Information on which these expenditure estimates are based was obtained by a mail questionnaire sent to a sample of 1980 resident and nonresident Colorado hunting and fishing license purchasers. The questionnaires and the accompanying cover letter are reproduced in Appendix A. Separate questionnaires were designed to obtain detailed expenditure data for categories of big game--antelope, bear, deer, and elk; for fishing; and for small game birds and animals.

Respondents were asked to provide estimates of two general classes of expenditure in Colorado during the years 1980 - 1981: (1) variable expenditures which ordinarily would be identified with a specific hunting or fishing activity and would vary by length of trip, number of

trips, or type of activity and (2) fixed expenditures which could logically be expected to be independent of the number of trips or the variety or number of sportsmen activities engaged in. The expenditures collectively called variable costs, include expenditures for transportation, communication, auto dealers, gas stations, eating places, hotel-motel, campgrounds, retail stores, entertainment, health services, other services, city and county government, state government, federal government, individuals and all other spending. These spending categories are further defined on page 4 of the survey form which is shown in Appendix A. Sixteen types of variable cost spending were distinguished in 1981. The categories are designed to match the economic input-output studies in Colorado in order to facilitate the estimation of the indirect economic impacts of sportsmen spending (to be reported in a subsequent publication). Thus the 1981 categories differ from those used in 1968 or 1973. Fixed costs for fishing include expenses for family vehicle, recreational vehicle, cabin, land, trailer, camper for pickup, boats and equipment, fishing poles, fishing equipment, horses, and other multi-purpose items. Fixed costs for hunters also include camping equipment, firearms or archery equipment, horses or dogs and exclude fishing poles and equipment.

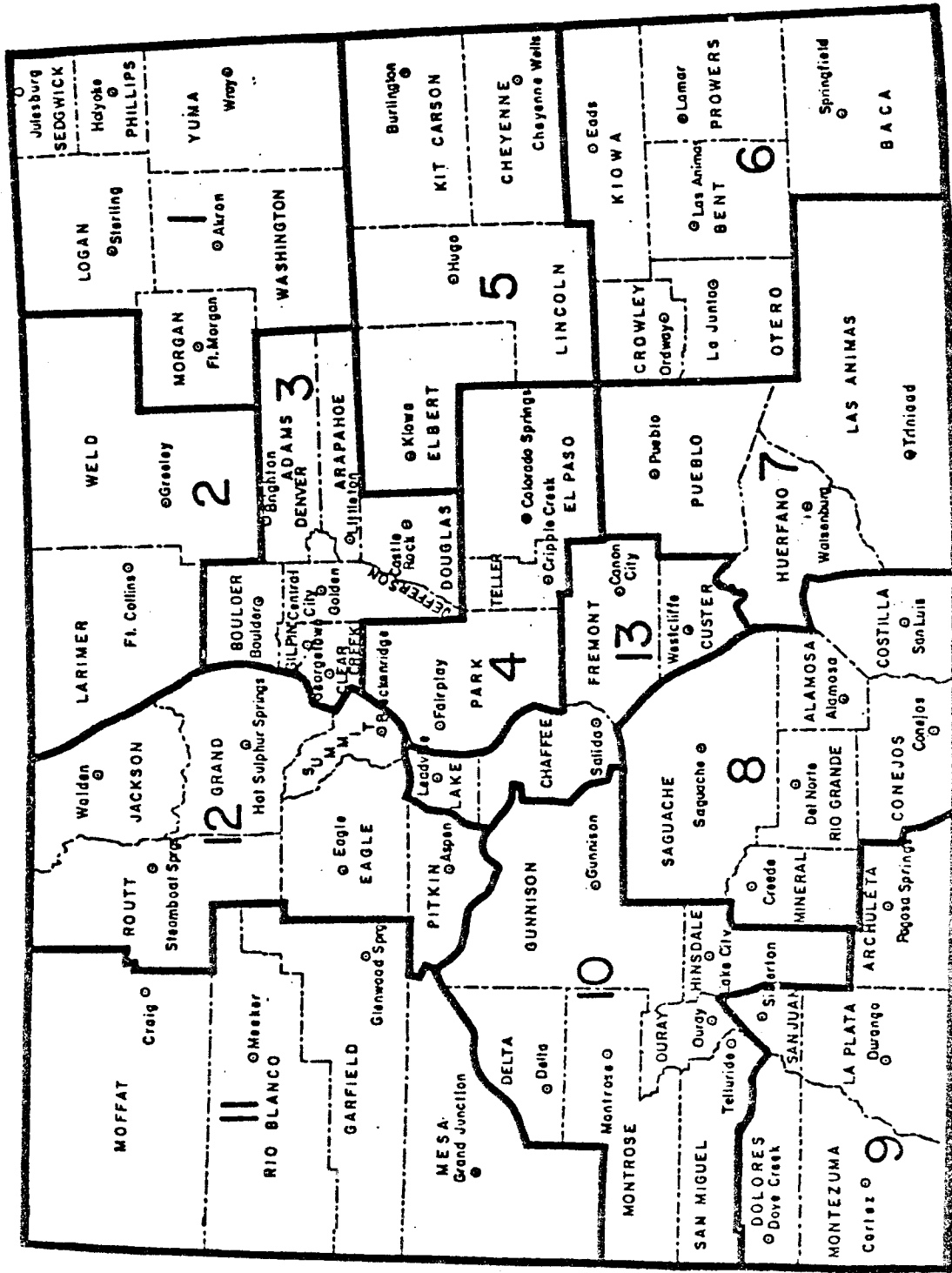
Respondents were asked to give percentages showing how much each fixed cost item was used for fishing or for hunting. This percentage is then multiplied by the reported purchase price to obtain the share of the multi-purpose spending allocated to sportsmen activity. As expected, many zero entries exist since capital items need not be replaced every

year. It is assumed that the 1980-81 period reflected "normal" capital replacement spending for multi-purpose items used partly for sportsmen activities. Capital replacement is subject to strong influences from the state of the economy, inflation, interest rates and other economic variables. This causes capital spending to fluctuate erratically over time. Comparison of the reported fixed costs for 1968, 1973 and 1981 reveals this characteristic. Measurement of "normal" capital replacement with sporadic sportsmen surveys is difficult due to these characteristics of capital spending.

#### Sampling Procedure

A 2% random sample of selected 1980 resident and nonresident Colorado hunters was drawn by license type from the master file of license receipts at the Denver office of The Colorado Division of Wildlife.

Questionnaires were sent to a sample of hunters and fishermen in the fall of 1980. A first reminder questionnaire was sent early in 1981 and a second follow-up questionnaire--was sent four weeks later. A total of 1,089 usable questionnaires were returned by hunters and 1,289 usable questionnaires were returned by fishermen. Resident sportsmen returned 1,555 usable questionnaires and nonresident sportsmen completed 823 usable questionnaires. In the 1973 survey, over 4,000 questionnaires were returned. However, only 1,056 usable nonresident questionnaires were obtained in 1973. Overall, about 14,000 questionnaires were mailed to Colorado hunting and fishing license holders, with 2,378 usable responses.



JANUARY 1, 1974

Division of Planning  
524 Social Services Building  
Denver, Colorado 80203

Figure 1. State Planning and Management Regions

The lower response rate for the 1981 survey in comparison with 1973 is attributed primarily to the greatly increased complexity of the 1981 questionnaire, in which respondents were asked 39 questions to elicit up to 270 separate pieces of information. Also, the timing of the mail survey coincided with Christmas holidays. The response rate was noticeably affected and long delays in returning of the completed forms were also noted. Stringent computerized data selection eliminated observations where cost data were outside reasonable bounds. Willingness-to-pay and socio-economic data has been collected in Colorado for the first time, at the sacrifice of a somewhat lower overall sample size. The reduction in response rate due to the complexity of the questionnaire was foreseen and the number of survey forms mailed was increased by almost 50%. Consequently, the number of usable records obtained is adequate for the types of analyses made in this study.

#### Estimation Methods

So that data users and designers of future surveys of sportsmen expenditures in Colorado can make proper use of and comparisons from the data summarized in this report, the methods for estimating average expenditures and expanding these averages to total expenditures for Colorado will be briefly discussed. After reviewing estimation procedures used in this study, data limitations will be noted.

The basic procedure for deriving the estimates of variable expenses in this report included the following steps:

Total dollar expenditures for each of the regions and species included in the questionnaire were divided by the number of corresponding survey returns.

After obtaining average total expenses for each of these 6 categories included in the questionnaire, each of these dollar figures was multiplied by the total number of licenses sold for each activity.

Combination fishing and small game licenses were sampled with a mix of fish or small game questionnaires matching the use mix used by the Division of Wildlife.

The result of these calculations was an estimate of total expenditures in Colorado for each of the 6 activities. By focusing on number of licensees for each activity, it was unnecessary to be concerned with identifying the net number of total sportsmen out of the total of all hunting and fishing licensees in Colorado. (Such a total would include considerable overlap, since many sportsmen buy more than one license.)

The procedure followed for estimating total and average fixed costs, by resident or nonresident, by activity, and by geographic area, was essentially the same as that described above.

#### Uses and Limitations of the Expenditure Data

The hunting and fishing expenditure data summarized in this report can be used, within limits, and subject to the qualifications given in this report, as benchmarks for estimating detailed dollar expenditures, either by species or for all major wildlife activities combined, for specific geographic areas or subregions of the state. Although the geographic breakdown of average expenditure data does not extend to the county level in this report, the availability of average expenditure comparisons for 13 geographic planning areas throughout Colorado provides significant clues about relative levels of expenditure for various local areas.

There are four basic uses of the expenditure data summarized in this report: (1) use of the data for making relative comparisons of

spending volume among various specified wildlife hunting or fishing activities and among geographic areas, (2) use of the data for estimating total dollar figures for sportsmen's hunting and fishing activities for a specific geographic area, (3) use of the data to compare and contrast spending for different activities, by region over time, and (4) use of the data for making comparisons of spending volume by type or industry of purchase cross classified by region. This allows computation of the indirect spending impacts using regional input-output models for Colorado.

Data from surveys such as this one are reasonably reliable for making relative comparisons; they tend to be somewhat less reliable (though how much less is purely conjectural) in making specific dollar estimates. Obviously, the recall by questionnaire respondents about specific dollar amounts for a wide variety of hunting and fishing activities engaged in over an extended period of months is likely to exhibit a range of error. But, if the sample is large enough, some of the error is self-compensating in terms of over-reporting by some and under-reporting by others. Bias may exist if, for example, those spending relatively small amounts also have a lower response rate to the survey. This could cause an overstatement of actual spending.

In addition to recall error, other sources of potential error include mistakes in filling out the form, deliberate attempts to bias the results, coding or editing error, keypunch error, and computer error. Although very stringent safeguards were built into the computerized data processing procedures, some allowance must be made for the possibility of error in the final results in such cases. Nonetheless, the data are



as valid as any data obtained by the kind of mail survey technique employed. Moreover, comparisons with the dollar amounts presented in this report with dollar amounts from the 1968 and 1973 surveys, adjusted for inflation, are, for the most part, reasonable in terms of expected magnitudes of change. Thus, a higher level of credibility obtains for these data than would obtain if no comparative data existed.

For resident expenditures on hunting and fishing activities in Colorado, the net incremental increase to the state's economy directly due to these activities is equivalent only to the amount of such expenditures that would be spent outside Colorado by resident sportsmen in the absence of hunting and fishing opportunities in Colorado. Some resident sportsmen would cease hunting or fishing and divert their sportsmen spending to other types of spending in Colorado. The total amount of nonresident hunting and fishing expenditures in Colorado, however, can be viewed as an exact measure of economic gain to Colorado since non-residents were asked to estimate only the portions of their total expenditures that were directly spent in Colorado.

The third dimension of the conceptual problem of estimating net economic impact from hunting and fishing expenditures is that of estimating net economic impact for specified planning areas within the state. To the extent that visitors from outside a county or region come into that county or region and make expenditures there, whether they are from other areas in Colorado or are nonresidents of the state, then that portion of total hunting and fishing expenditure can be viewed as a net increment to total spending in that county or subregion, just as out-of-state hunter and fishermen expenditures can be viewed as having a net economic impact on the entire state of Colorado.

The expenditure data in this report provide important clues about the relative significance of wildlife expenditures as a share of total economic activity in Colorado or in specific counties or sub-regions of Colorado. But the 1981 gross expenditure data on hunting and fishing activities in Colorado measure only the primary level of such expenditures. Such data do not show the indirect effects of these initial expenditures on the state or local economies. Thus, these primary expenditures do not show the total economic impact of hunting and fishing on the Colorado economy. A subsequent report will include input-output multiplier estimates for several Colorado regions to estimate total impacts in the 13-state planning regions.

The dollar amounts spent and reported here in no way reflect a sportsman's willingness to pay for wildlife hunting or fishing activities; they are not a measure of effective demand or consumer surplus. Thus, for example, the total amount spent by deer hunters in Colorado in 1981 is not a measure of what the deer hunting season was actually worth to all deer hunters over a wide range of income levels nor is it what they each would actually have been willing to pay for deer hunting. Rather, the deer hunting expenditures reported here show only estimates of the actual amounts spent. If all wildlife recreational activities were priced through a market system, as in sporting goods stores, it is likely that the total expenditures attributable to such activities would be much higher than these estimates indicate. Total benefits, including consumers surplus, would be larger by an order of magnitude.

The 1981 survey was greatly expanded to include questions used to derive estimates of demand and willingness-to-pay or benefits to sportsmen. These will be analyzed in a subsequent report.

These data do not provide estimates of non-consumptive use benefits of wildlife recreation or benefits derived from activities not directly involved with hunting or fishing--such as tourism, photography, aesthetic values from sightseeing, and similar activities. For example, many people derive very substantial personal values from knowledge that big-horn sheep, mountain goats, moose, elk and deer are living in the Colorado mountains.

In considering the reliability of the regional sportsmen expenditure data, it is possible that these estimates are biased toward the respondent's home area or area where large capital purchases were made and toward the areas of principal hunting and fishing activity. On the other hand, expenses incurred enroute are likely to be under-estimated. The respondent will remember best where he or she bought a gun or fishing tackle but may not remember how many times or in what areas he or she stopped for gas or incidentals between home and the recreation site. For nonresident variable sportsmen expenditures, it is possible that expenses were over allocated to the area hunted or fished or to major stopping points when arriving in Colorado.

## CHAPTER II

### COLORADO HUNTING AND FISHING EXPENDITURES IN 1981 AND 1973

The results of the 1981 Colorado sportsmen expenditure survey are reviewed in terms of statewide totals in this chapter. Estimates of Colorado sportsmen expenditures for 13 geographic planning areas throughout the state are summarized in the following chapter. In this chapter, total expenditures and per capita expenditures are tabulated for all resident and nonresident Colorado sportsmen in six wildlife hunting and fishing activities. Total sportsmen expenditures were further broken down into expenditures on variable and fixed cost categories for both residents and nonresidents for the list of six hunting and fishing activities.

As shown in Table 1, an estimated total of \$1,001 million was spent in Colorado by sportsmen in 1981. Residents spent 81.9% of this total, or \$820.3 million, while nonresidents spent 18.1% of the total, or \$180.8 million. The split between resident and nonresident is similar to that found in 1973 (84% resident and 16% nonresident). Spending amounts are much higher, however, with total spending of only \$329.4 million in 1973. Thus a large increase in sportsmen spending has occurred over the eight-year period. Even after adjustment for the unusually high rate of inflation during the 1973-81 period, the real sportsmen spending increase is quite large.

Figure 2 shows that fishing accounted for over 62 percent of resident sportsmen expenditures in Colorado for 1981. Resident fishing

TABLE 1A  
 TOTAL AND AVERAGE TOTAL SPORTSMEN EXPENDITURES IN COLORADO  
 BY ACTIVITY PARTICIPATION IN 1981

Activity	Resident		Nonresident		Total
	Total	Per Capita	Total	Per Capita	
Antelope	\$ 12,522,987	\$ 971	\$ 21,210	\$ 101	\$ 12,544,197
Bighorn Sheep	NA <sup>1</sup> (245,332)	---	0 ( 0)	---	NA <sup>1</sup> (245,332)
Bear	2,723,805	315	730,673	257	3,454,478
Deer	84,750,530	647	76,412,856	1,378	161,163,386
Elk	97,301,775	722	77,553,632	1,312	174,855,407
Mtn Lion	NA <sup>a</sup> (147,928)	---	NA <sup>a</sup> (142,136)	---	NA <sup>1</sup> (290,064)
Fishing	514,574,387	1,119	24,252,732	1,226	538,827,119
Small Game	108,072,920	995	1,696,360	365	109,769,280
Total	\$ 820,339,664		\$ 180,809,599		\$ 1,001,149,263
Percent	81.9		18.1		100.0

a/ Bighorn Sheep and Mountain Lion total spending only made up about 0.07 percent of total spending in 1973. The number in brackets are based on the assumption that the spending shares for Sheep and Mountain Lion have remained unchanged within resident and within nonresident fixed and variable classification since 1970.

TABLE 1B  
TOTAL AND AVERAGE TOTAL SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1973

Activity	Resident		Nonresident		Total
	Total	Per Capita	Total	Per Capita	
Antelope	\$ 818,370	\$144.71	\$ 12,777	\$ 56.03	\$ 831,147
Bighorn Sheep	79,754	538.88	- 0 -	- 0 -	79,754
Bear	642,991	159.54	224,418	80.53	867,409
Deer	36,002,279	273.31	11,611,329	239.99	47,613,608
Elk	28,345,653	324.85	8,015,565	278.99	36,361,218
Mountain Lion	58,238	93.12	91,484	121.50	149,722
Fishing	184,526,232	447.98	30,917,022	163.23	215,443,254
Small Game	27,691,756	206.29	338,897	113.04	28,030,653
Total	\$278,165,273		\$51,211,492		\$329,376,765
Percent	84.5		15.5		100.0

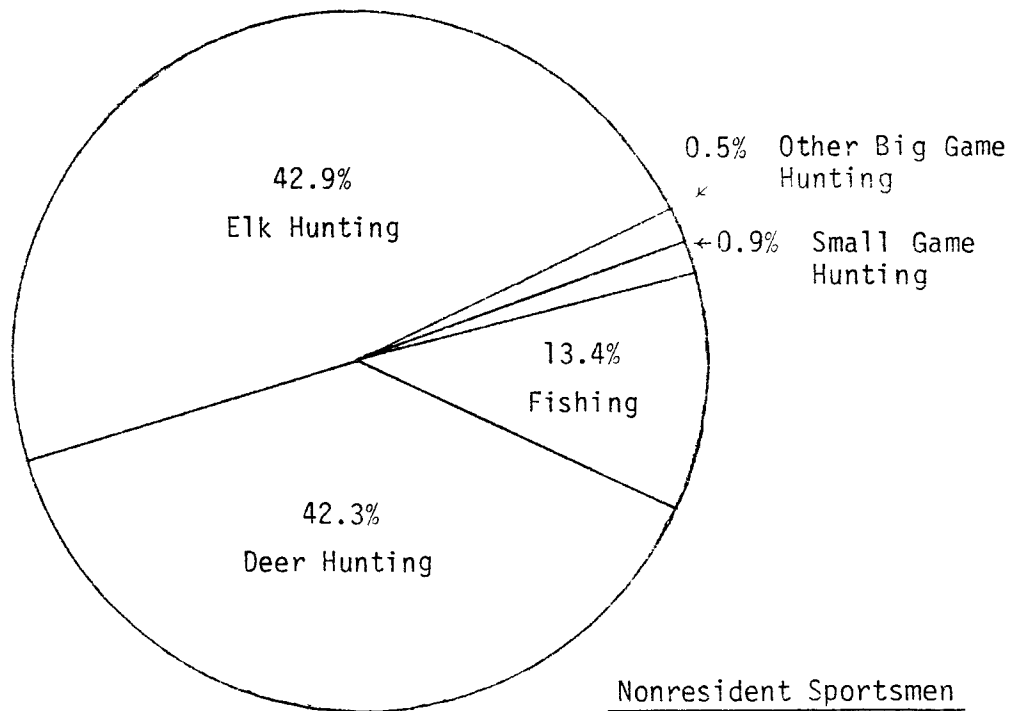
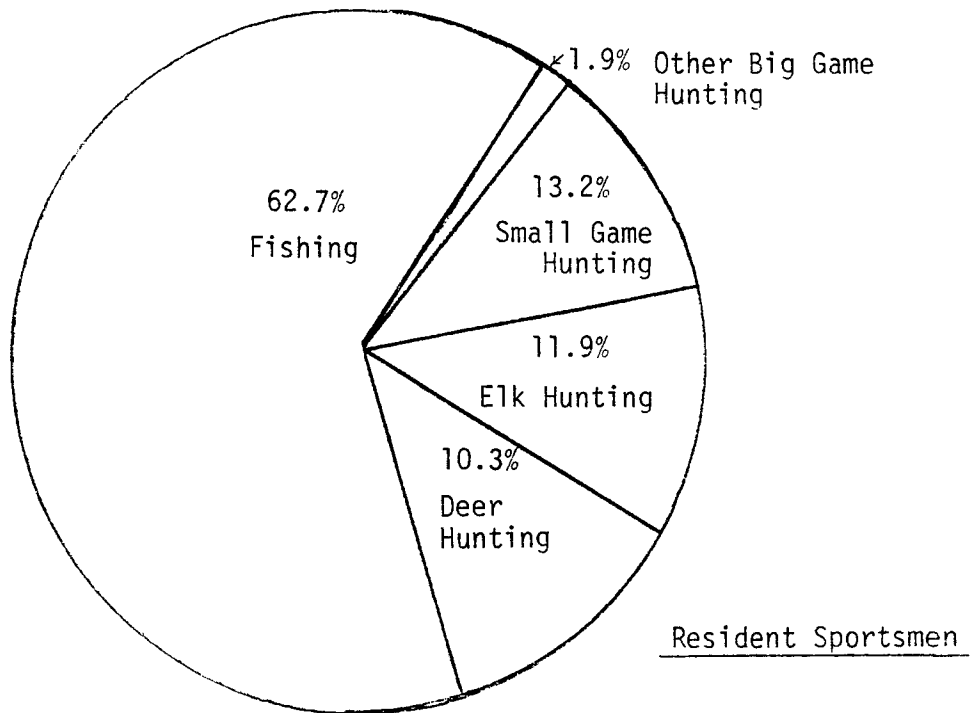


Figure 2-A. Percentage Distribution of Estimated Gross Expenditures in Colorado by Resident and Nonresident Sportsmen in 1981.

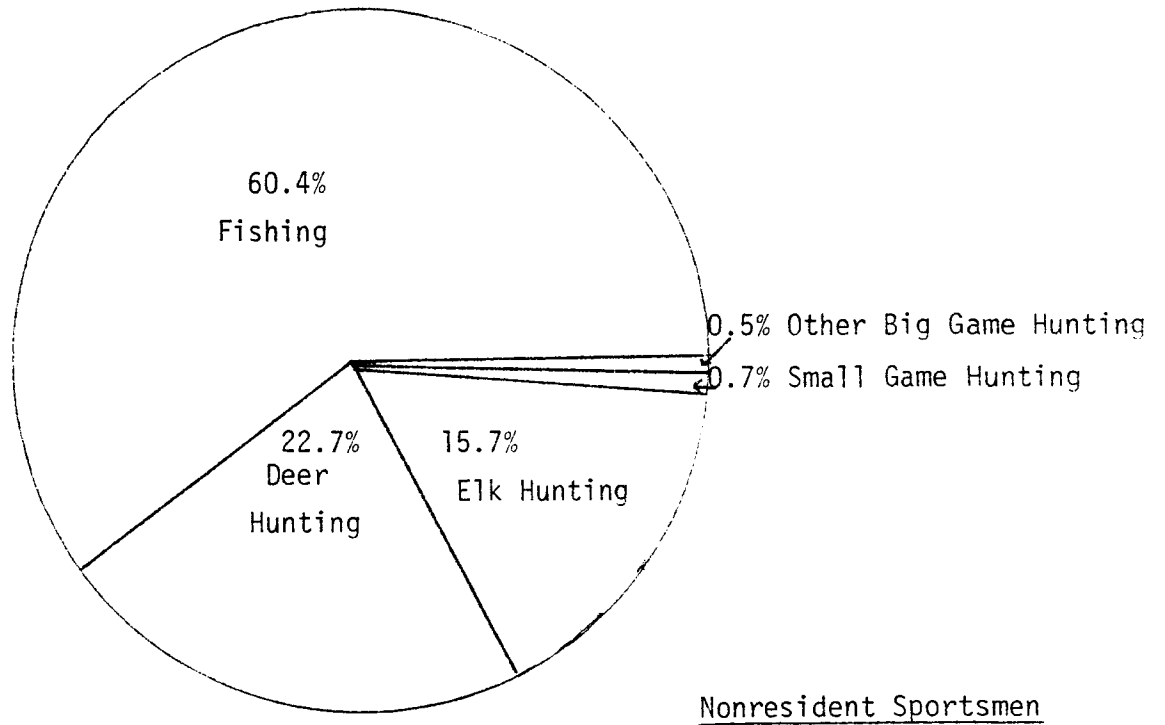
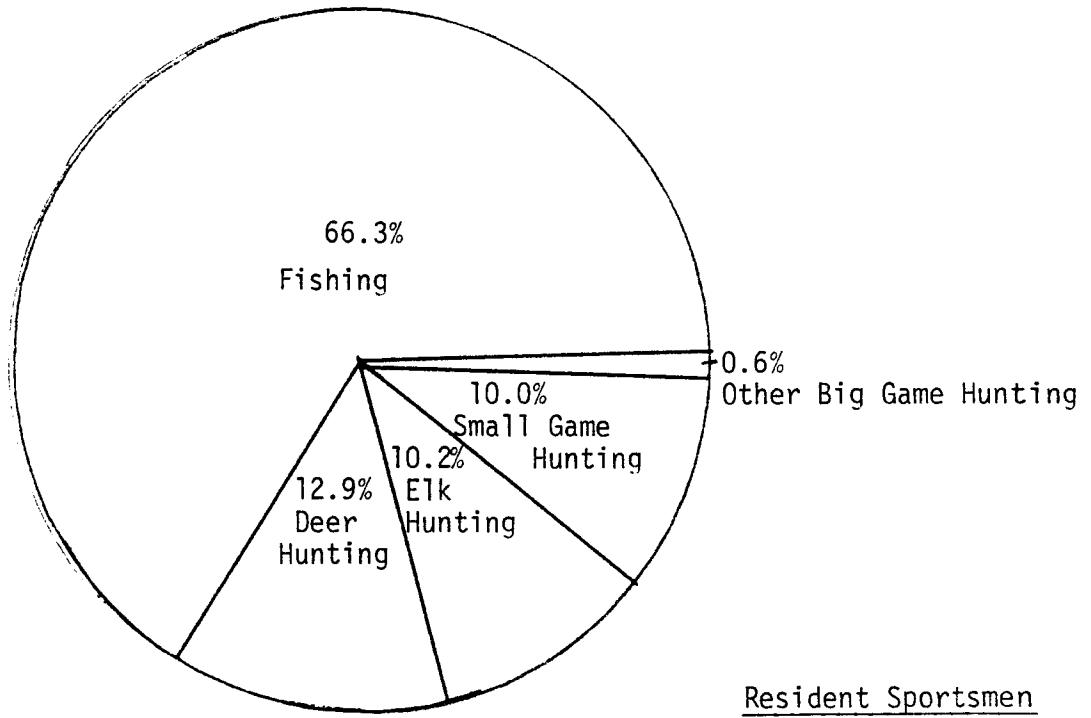


Figure 2-B. Percentage Distribution of Estimated Gross Expenditures in Colorado by Resident and Nonresident Sportsmen in 1973.



expenditures were followed in order of importance by small game hunting, which accounted for 13.2 percent of resident sportsmen expenditures; elk hunting, 11.9 percent; deer hunting, 10.3 percent; and other big game hunting, 1.9 percent. Fishing accounted for 13.4 percent of the total nonresident expenditures, while small game hunting accounted for 0.9 percent; elk hunting, 42.9 percent; deer hunting, 42.3 percent; and other big game, 0.5 percent..

Average per capita resident expenditure on fishing for 1981 was \$1,119, up from \$448 in 1973. The large average per capita expenditure for fishing is certainly due, in part, to the year-round Colorado fishing season. It is also due to the fact that fishing is more likely to be a family sport than are most hunting activities.

Resident small game hunters had the second highest per capita expenditure of \$995; followed by antelope hunters, \$971; elk, \$772; deer, \$647; and bear, \$315. Nonresident holders of annual fishing licenses (two-day and ten-day permits were excluded) had per capita spending of \$1,226. Nonresident deer hunting was highest, however, at \$1,378. Nonresident elk hunting was second highest at \$1,312. Spending by nonresidents on the remaining game types was relatively small; small game hunting, \$365; bear hunting, \$257; and antelope hunting, \$101. For nonresidents, per capita fishing expenditures were estimated only for those buying annual permits. It is likely that many nonresident tourists who purchase limited period licenses fish as an incidental part of their summer vacations and that, therefore, they charge only a very minor part of their trips to fishing expenditures in Colorado. On the other hand, nonresident hunters usually come to Colorado for the sole purpose of

shooting big game. Such hunters are more likely to charge a high percentage of total trip expenditures, if not all trip expenditures, solely to wildlife activities than are summer tourists who buy fishing licenses only to augment their vacation activities.

Resident sportsmen expenditures for both variable and fixed categories of spending are shown in Table 2A. About 24.4 percent of total resident expenditures (\$200.477 million) was for variable items, while 75.6 percent of total resident expenditures (\$619.863 million) was attributable to fixed expenditure items. Thus, fixed expenditures by resident sportsmen are over three times the volume of variable expenditures. Although fewer sportsmen make fixed expenditures than make variable expenditures, the much larger average cost per item for fixed items results in a larger total than that for variable expenditures. Similar estimates for 1973 are shown in Table 2B. The resident variable costs have risen by more than double while resident fixed costs are up by three and one-half times. Part of the increase in fixed costs may be due to a revision in the questionnaire which was intended to increase the accuracy in fixed-cost reporting. Fixed expenditures were greater than variable expenditures for all species and wildlife activities, except for the minor activity category of mountain lion hunting (which was based on the 1973 survey).

Nonresident sportsmen expenditures, subdivided into variable and fixed expenditures, are given in Table 3A. Variable expenditures accounted for 35.6 percent (\$64.3 million) of total nonresident expenditures, while fixed expenditures accounted for 64.4 percent of total nonresident sportsmen expenditures (\$116.5 million). Table 3B presents

TABLE 2A

VARIABLE AND FIXED AND AVERAGE VARIABLE AND AVERAGE FIXED  
RESIDENT SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1981

Activity	Variable Costs		Fixed Costs		Total Expenditures
	Total	Per Capita	Total	Per Capita	
Antelope	\$ 1,302,597	\$101	\$ 11,220,390	\$870	\$ 12,522,987
Bighorn Sheep	NA b(61,939)	--	NA <sup>b</sup> (183,393)	--	245,332
Bear	907,935	105	1,815,870	210	2,723,805
Deer	18,338,600	140	66,411,930	507	84,750,530
Elk	18,463,079	137	78,838,696	585	97,301,775
Mountain Lion	NA <sup>b</sup> (94,476)	--	NA <sup>b</sup> (53,452)	--	147,928
Fishing	137,955,600	300	376,618,787	819	514,574,387
Small Game	23,352,440	215	84,720,480	780	108,072,920
Total	\$200,476,666		\$619,862,998		\$820,339,664
Percent	24.4		75.6		100.0

a/ See Appendix B for definition.

b/ Bighorn Sheep and Mountain Lion total spending only made up about 0.07 percent of total spending in 1973. The number in brackets are based on the assumption that the spending shares for Sheep and Mountain Lion have remained unchanged within resident and within nonresident fixed and variable classification since 1970.

TABLE 2B

VARIABLE AND FIXED AND AVERAGE VARIABLE AND AVERAGE FIXED  
RESIDENT SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1973

Activity	Variable Costs		Fixed Costs		Total Expenditures
	Total	Per Capita	Total	Per Capita	
Antelope	\$ 308,466	\$ 54.72	\$ 508,904	\$ 89.99	\$ 818,370
Bighorn Sheep	28,361	191.63	51,393	347.25	79,754
Bear	367,535	91.54	275,456	68.00	642,991
Deer	11,360,186	86.24	24,642,093	187.07	36,002,279
Elk	9,883,385	113.27	18,462,268	211.58	28,345,653
Mountain Lion	43,259	68.88	14,979	24.24	58,238
Fishing	61,152,278	148.46	123,373,954	299.52	184,526,232
Small Game	9,795,218	72.97	17,896,538	133.32	27,691,756
TOTAL	\$92,938,688	--	\$185,225,585	--	\$278,165,273
Percent	33.4		66.6		100.0

a/See Appendix B for definition.

TABLE 3A

VARIABLE AND FIXED AND AVERAGE VARIABLE AND AVERAGE FIXED NON-RESIDENT SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1981

Activity	Variable Costs <sup>a/</sup>		Fixed Costs <sup>b/</sup>		Total Expenditures
	Total	Per Capita	Total	Per Capita	
Antelope	\$ 21,210	\$101 <sup>c/</sup>	\$	\$	\$ 21,210
Bighorn Sheep					
Bear	297,990	105 <sup>c/</sup>	NA <sup>b</sup> (432,683)	152	730,673
Deer	26,228,796	473	50,184,060	905	76,412,856
Elk	27,131,949	459	50,421,683	853	77,553,632
Mountain Lion	NA <sup>b</sup> (119,622)	--	NA <sup>b</sup> (22,514)	--	142,136
Fishing	9,534,924	482	14,717,808	774	24,252,732
Small Game	998,675	215	NA <sup>b</sup> (697,685)	150	1,696,360
Total	\$64,333,166		\$116,476,433		\$180,809,599
Percent	35.6		64.4		100.0

a/ See Appendix B for definition.

b/ The numbers in brackets are based on the assumption that the spending shares for small game fixed cost, Antelope fixed cost, Bear fixed cost, and Mountain Lion variable and fixed cost have remained unchanged since 1973.

c/ Average spending by residents was assumed for non-residents.

TABLE 3B

VARIABLE AND FIXED AND AVERAGE VARIABLE AND AVERAGE FIXED NONRESIDENT SPORTSMEN  
EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1973

Activity	Variable Costs		Fixed Costs		Total Expenditures
	Total	Per Capita	Total	Per Capita	
Antelope	\$ 11,937	\$ 52.35	\$ 840	\$ 3.68	\$ 12,777
Bighorn Sheep	-0-	-0-	-0-	-0-	-0-
Bear	193,938	69.59	30,480	10.94	224,418
Deer	9,487,221	196.09	2,124,108	43.90	11,611,329
Elk	7,128,481	248.11	887,084	30.88	8,015,565
Mountain Lion	89,898	119.39	1,586	2.11	91,484
Fishing	25,702,355	135.70	5,214,667	27.53	30,917,022
Small Game	289,749	96.65	49,148	16.39	338,897
TOTAL	\$42,903,579	--	\$8,307,913	--	\$51,211,492
Percent	83.8		16.2		100.0

a/See Appendix B for definition.

similar estimates for 1973. Nonresident variable expenditures have risen by only 49 percent while nonresident fixed spending is up by about 14 times.

It was noted in the 1973 report that nonresident fixed spending seemed very low relative to the 1968 survey. The revised questionnaire and changing economic conditions evidently have resulted in much larger fixed cost reporting by nonresidents. The relatively small rise in nonresident variable costs is due partly to the decision that only nonresident holders of annual fishing licenses should be counted as sportsmen. The previous study for 1973 applied the survey results to all fishing license holders resulting in much larger total expenditure estimates for nonresident fishing. However it is clearly inappropriate to apply the 1981 \$1,226 average total cost to the very large number of two-day and ten-day permittees. If tourists were assumed to spend \$1,226 on average for their two-day or ten-day fishing experience in Colorado, this would add over \$267 million dollars to total sportsmen spending. Total sportsmen spending in Colorado would rise to \$1,268 million, a 27 percent increase. Actual spending for fishing by tourists would be much less than this. Future studies should investigate the spending patterns separately for the two-day and ten-day fishing licenses.

### CHAPTER III

#### GEOGRAPHIC DISTRIBUTION OF COLORADO HUNTING AND FISHING EXPENDITURES IN 1981 AND 1973

The purpose of this chapter is to provide estimates of 1981 hunting and fishing expenditures in Colorado resident and nonresident sportsmen by 13 geographic planning regions in the State (see Figure 1, page 5). No attempt was made to present expenditures at the county level because the sample size required to produce valid estimates at the county level would have exceeded the budget for this study. However, county-level data are available on computer files and can be aggregated to different regions as desired.

The estimates of the geographic distribution of sportsmen expenditures summarized in this chapter are a disaggregation of the total expenditure figures contained in Tables 1, 2, and 3 in Chapter II. But the sum of expenditures for all 13 geographic planning regions for a particular species or activity will not necessarily equal the total state expenditures for that species or activity, due to a certain amount of rounding error in the estimation process. In most cases, however, the net difference between the totals of regional expenditures and the state totals is less than 1 percent. Because reliability of estimates from surveys such as this one diminishes when disaggregations are made, the expenditure estimates for the 13 planning areas can be assumed to be somewhat less accurate than the state total expenditure data.

Regional distributions of total resident and nonresident sportsmen expenditures in Colorado for 1981 and 1973 are given in Table 4. Much can



TABLE 4A  
 REGIONAL DISTRIBUTION OF TOTAL SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1981  
 (Thousands of Dollars)

Activity	Map Area <sup>b/</sup>													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Antelope	210	744	8,293	246	221	154	128	441	0	0	1,051	687	369	12,544
Bear	0	612	743	9	0	26	9	138	348	40	452	446	199	3,022
Deer	925	3,093	54,867	4,825	169	755	1,647	1,937	16,049	26,952	19,450	10,062	2,943	143,674
Elk	550	2,091	99,771	9,699	110	267	5,981	6,193	10,247	9,560	5,413	15,764	2,819	168,465
Fishing	1,283	41,419	264,513	50,808	1,121	2,840	13,085	18,796	10,772	35,225	38,389	54,347	19,213	551,811
Small Game	10,733	18,699	50,285	584	516	10,602	4,001	239	397	1,008	2,404	3,021	2,671	105,160
TOTAL <sup>a/</sup>	13,701	66,658	478,472	66,171	2,137	14,644	24,851	27,744	37,813	72,785	67,159	84,327	28,214	984,676

<sup>a/</sup>Total may not equal totals in Table 1 because of rounding and exclusion of items not distributed by the survey.

<sup>b/</sup>Map areas are defined in Figure 1 on page 5.

TABLE 4B  
REGIONAL DISTRIBUTION OF TOTAL SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1973

Activity	Map Area <sup>b/</sup>													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Antelope	58,689	73,886	245,047	50,663	96,864	27,204	30,487	2,644	0	8,305	225,694	11,662	0	831,115
Bighorn Sheep	0	15,160	0	0	0	0	0	4,623	0	46,566	13,405	0	0	79,754
Bear	843	62,106	148,217	41,512	0	34,528	20,685	65,233	94,087	255,603	48,128	78,040	18,424	867,406
Deer	258,691	3,339,837	9,676,560	3,219,710	298,046	298,307	1,100,778	2,128,087	2,312,335	6,028,320	1,149,340	6,032,541	1,770,657	47,613,209
Elk	194,833	2,382,643	6,872,554	1,573,858	78,194	169,637	962,073	2,669,643	2,726,051	4,484,201	6,478,927	7,068,548	699,409	36,360,571
Mountain Lion	0	0	12,328	4,934	0	0	5,276	26,720	18,267	3,289	67,502	7,574	3,891	149,721
Fishing, Lake	3,620,709	16,474,677	30,997,411	14,740,641	1,443,372	1,086,681	2,598,365	3,224,923	3,541,542	14,239,899	8,782,423	122,954	4,727,264	28,600,861
Fishing, Stream	755,398	8,859,848	17,257,635	7,082,592	174,172	104,503	1,421,014	7,022,315	2,704,034	13,409,814	6,125,153	7,033,467	4,435,287	86,385,232
Duck	1,474,257	1,075,334	2,027,470	291,468	93,003	332,611	276,293	224,378	281,435	166,729	123,447	171,723	37,883	6,576,031
Geese	236,011	1,006,148	821,818	204,812	64,648	688,419	344,868	8,699	140	732	90,250	7,737	14,872	3,489,154
Small Game Birds	1,926,312	889,048	3,050,560	348,979	444,423	430,052	298,444	336,737	84,295	478,693	499,488	782,563	195,213	9,764,807
Small Game Mammals	315,750	351,675	753,989	567,798	142,540	171,879	295,371	197,048	87,616	334,672	489,408	361,397	446,914	4,516,057
Varmints	648,052	415,342	697,679	282,585	210,720	141,000	141,220	183,476	302,728	241,995	277,798	206,222	81,379	3,830,196
TOTAL <sup>a/</sup>	9,489,543	34,945,704	72,561,268	28,409,522	3,045,982	3,484,821	7,494,874	16,094,526	12,152,530	39,698,818	34,370,963	884,368	12,431,193	329,064,114

<sup>a/</sup> Totals may not equal totals in Table 1 due to rounding.

<sup>b/</sup> Map areas are defined in Figure 1 on page 5.

be learned about the geographic distribution of hunting and fishing activities and expenditures by examining the rows in this table. For example, antelope hunters spent \$8,293,000 in Region 3 (the Denver metropolitan area and adjacent counties) and \$1,051,000 in Region 11 (the Craig-Meeker-Grand Junction area). These data suggest that antelope hunters, particularly Denver residents, spent much more in Denver getting ready to leave on their hunting trips than they did in the actual hunting vicinities. The other big game spending patterns exhibit similar characteristics.

A similar relationship between expenditures in Colorado's urban areas and expenditures at the hunting sites is evident for small game expenditures. The largest dollar expenditures by small game hunters take place in Denver and Larimer-Weld Counties, while the third largest volume of expenditures takes place in Region 1 (Fort Morgan and Sterling), one of the major outlying areas where this hunting activity actually takes place. Similar comparisons can be made for other species and hunting activities by comparing volume of total expenditures for various geographic areas throughout Colorado.

When the data in Table 4 are summed down the columns, the total amount spent by sportsmen on all hunting and fishing activities in that region is obtained. As expected, the Denver metropolitan area (Region 3) received the largest share of sportsmen expenditures, about \$478 million. Since a large part of the total Colorado population lives in the Denver metropolitan area, and Denver contains high-volume sporting goods stores, the concentration of expenditures in this area was expected.

The second largest share of total Colorado sportsmen expenditures in 1981 occurred in Region 12 which includes Steamboat Springs. Spending in this region was dominated by fishing.

Map Areas 4, 12, 10, 11 and 2, with population centers in Colorado Springs, Steamboat Springs, Gunnison, Grand Junction, and Fort Collins, respectively, together generated about 36 percent of total Colorado sportsmen expenditures in 1981. Each area is a popular hunting and fishing site, with a wide range of available activities and locations.

The six map areas discussed above accounted for 85 percent of total sportsmen expenditures in 1981. The remaining 15 percent of total sportsmen expenditures was distributed among the remaining seven areas, none with large population centers.

Examining the columns in the tables contained in this chapter provides considerable insight into the hunting and fishing activities found in each map area. For instance, the data for Map Area 1 in Table 4A reveal that most expenditures in that area were made for small game. Since Map Area 1 includes the Fort Morgan-Sterling area, this concentration of expenditures is reasonable and expected. An examination of Map Area 10, which includes the Gunnison-Montrose area, shows that this region received most of its sportsmen expenditures from fishing and from deer and elk hunting. Relatively fewer expenditures on small game hunting were recorded for this mountainous big game area. Similar comparisons can be made for each of the planning areas included in these tables.

The findings in Table 4 are summarized in Table 5 which gives the percentage of expenditures accounted for by each geographic map area. Map Area 3 (the Denver metropolitan area) accounted for 48.6 percent of

TABLE 5A  
REGIONAL DISTRIBUTION OF TOTAL SPORTSMEN EXPENDITURES  
IN MAP AREAS BY PERCENT, 1981

Map Area <sup>a/</sup>	Total
1	1.4
2	6.8
3	48.6
4	6.7
5	0.2
6	1.5
7	2.5
8	2.8
9	3.8
10	7.4
11	6.8
12	8.6
13	2.9
Total	100.0

<sup>a/</sup> Map areas are defined in Figure 1 on page 5.

TABLE 5B  
REGIONAL DISTRIBUTION OF TOTAL SPORTSMEN EXPENDITURES  
IN MAP AREAS BY PERCENT, 1973

Map Area <sup>a/</sup>	Total
1	2.9%
2	10.6
3	22.1
4	8.6
5	1.0
6	1.1
7	2.3
8	4.9
9	3.7
10	12.1
11	10.4
12	16.7
13	3.8
Total	100.2%

<sup>a/</sup>Map areas are defined in Figure 1 on page 5.

total sportsmen spending during the year 1981. As expected, the eastern plains area (Map Areas 1, 5, 6 and 7) accounted for only a minor share (5.6 percent) of total expenditures during 1981.

#### Distribution of Resident Expenditures

The regional distribution of resident sportsmen expenditures is presented in Tables 6A and 6B. The findings contained in these tables are summarized in Table 7 which shows that 1981 resident expenditures were concentrated as follows: Map Area 3, 41.8 percent; Map Area 4, 9.3 percent; Map Area 12, 10.2 percent; Map Area 2, 8.2 percent; and Map Areas 10 and 11 about 7 1/2 percent each. These regions are either the locations of large urban areas or they are the most popular hunting and fishing locations. The eastern plains areas, combined, received only 6.5 percent of total resident sportsmen expenditures in 1981.

#### Distribution of Nonresident Expenditures

The regional distribution of nonresident sportsmen expenditures in Colorado is presented in Tables 8A and 8B. The findings, summarized in Table 9, indicate that, for 1981, nonresident expenditures were concentrated in Denver-Colorado Springs and in a few recreation areas on the Western Slope. Map Area 3 (Denver) accounted for the largest share (56.1 percent) of nonresident expenditures. Other areas of major importance in nonresident sportsmen expenditures include Map Area 9 (Durango-Cortez), Map Area 10 (Gunnison-Montrose), and Map Area 12 (Steamboat Springs). These four areas combined accounted for 85.2 percent of total nonresident sportsmen expenditures in 1981.

TABLE 6A  
 REGIONAL DISTRIBUTION OF TOTAL RESIDENT EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1981  
 (Thousands of Dollars)

Activity	Map Area <sup>b/</sup>													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Antelope	206	741	8,306	242	216	154	123	437	0	0	1,049	689	360	12,523
Bear	0	611	742	8	0	25	8	138	347	40	451	445	197	3,012
Deer	702	2,982	27,062	4,693	31	710	1,277	1,295	3,448	20,582	13,258	6,012	2,734	84,786
Elk	462	3,600	11,711	19,925	122	489	6,598	4,563	5,300	9,523	6,483	21,618	5,420	95,814
Fishing	1,272	41,188	244,788	50,539	1,088	2,573	11,896	15,758	9,282	32,129	37,638	51,974	18,896	519,021
Small Game	10,585	18,374	49,412	573	506	10,417	3,931	235	358	989	2,361	2,967	2,623	103,361
Total <sup>a/</sup>	13,227	67,496	342,021	75,980	1,963	14,368	23,833	22,426	18,765	63,263	61,240	83,705	30,230	818,517

a/ Table may not equal totals in Table 1 because of rounding and exclusion of items not distributed by the survey.

b/ Map areas are defined in Figure 1 on page 5.



TABLE 6B  
REGIONAL DISTRIBUTION OF TOTAL RESIDENT SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1973

Activity	Map Area <sup>b/</sup>													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Antelope	58,689	73,886	238,529	50,633	96,864	26,225	28,741	2,644	0	8,305	223,932	9,900	0	818,348
Bighorn Sheep	0	15,160	0	0	0	0	0	4,623	0	46,566	13,405	0	0	79,754
Bear	843	55,017	148,217	41,512	0	0	6,981	27,839	33,793	208,951	30,280	72,753	16,802	642,988
Deer	235,872	3,200,001	8,804,851	3,088,455	110,617	252,273	981,368	1,809,816	1,026,473	3,491,562	6,373,415	5,011,532	1,615,624	36,001,859
Elk	159,972	2,294,060	6,529,810	1,240,614	68,974	144,294	864,635	1,991,114	1,692,156	2,898,734	4,297,447	5,481,189	681,992	28,344,991
Mountain Lion	0	0	12,328	4,934	0	0	0	26,720	0	3,289	4,553	5,046	1,366	58,236
Fishing, Lake	3,571,172	14,938,888	29,840,993	12,162,292	1,403,918	1,056,885	2,387,707	2,155,480	2,094,469	10,993,394	8,265,954	22,111,756	4,223,540	15,206,448
Fishing, Stream	675,362	7,861,766	16,419,313	6,564,851	146,218	103,551	1,274,993	3,420,325	1,246,082	7,241,091	5,483,866	4,714,755	3,716,500	68,868,673
Duck	1,438,616	1,069,362	2,027,470	291,468	93,003	318,901	276,293	224,378	281,435	166,729	123,447	171,723	37,883	6,520,708
Geese	236,011	1,005,441	821,818	204,812	64,648	553,196	344,868	8,699	140	732	89,249	7,737	14,872	3,352,223
Small Game Birds	1,914,098	879,946	3,050,560	348,979	436,112	422,754	298,444	335,269	84,295	478,360	499,488	782,075	194,332	9,724,712
Small Game Mammals	315,750	324,672	753,989	567,798	142,540	171,312	295,371	197,048	87,616	334,672	456,713	360,274	442,422	4,450,177
Varmints	648,052	415,342	697,679	279,525	197,996	140,500	126,390	179,128	302,728	241,995	275,957	204,290	79,930	3,789,512
Total <sup>a/</sup>	9,254,437	32,133,541	69,345,557	24,845,873	2,760,890	3,189,891	6,885,791	10,383,083	6,849,187	26,114,380	26,137,706	48,933,030	11,025,263	277,858,629

<sup>a/</sup>Totals may not equal totals in Table 1 due to rounding.

<sup>b/</sup>Map areas are defined in Figure 1 on page 5.

TABLE 7A  
REGIONAL DISTRIBUTION OF RESIDENT SPORTSMEN EXPENDITURES  
IN MAP AREAS BY PERCENT, 1981

Map Area <sup>a/</sup>	Total
1	1.6
2	8.2
3	41.8
4	9.3
5	0.2
6	1.8
7	2.9
8	2.7
9	2.3
10	7.7
11	7.5
12	10.2
13	3.7
Total	99.9

<sup>a/</sup> Map areas are defined in Figure 1 on page 5.

TABLE 7B  
REGIONAL DISTRIBUTION OF RESIDENT SPORTSMEN EXPENDITURES  
IN MAP AREAS BY PERCENT, 1973

Map Area <sup>a/</sup>	Total
1	3.3%
2	11.6
3	25.0
4	8.9
5	1.0
6	1.1
7	2.5
8	3.7
9	2.5
10	9.4
11	9.4
12	17.6
13	4.0
Total	100.0%

<sup>a/</sup>Map areas are defined in Figure 1 on page 5.

TABLE 8A  
 REGIONAL DISTRIBUTION OF TOTAL NONRESIDENT SPORTSMEN EXPENDITURES  
 BY ACTIVITY PARTICIPATION IN 1981  
 (Thousands of Dollars)

Activity	Map Area <sup>c/</sup>													Total		
	1	2	3	4	5	6	7	8	9	10	11	12	13			
Antelope	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bear	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Deer	223	111	27,805	132	138	45	370	642	12,601	6,370	6,192	4,050	209	58,888		
Elk	324	346	44,714	43	50	29	2,782	3,980	7,678	4,944	2,270	5,288	190	72,638		
Fishing	11	231	19,725	269	33	267	1,189	3,038	1,490	3,096	751	2,373	317	32,790		
Small Game	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total <sup>b/</sup>	558	688	92,244	444	221	341	4,341	7,660	21,769	14,410	9,213	11,711	716	164,316		

a/ The nonresident spending for this activity participation is very small and the sample cannot be distributed accurately on a regional basis.

b/ Totals may not equal totals in Table 1 because of rounding and exclusion of items not distributed by the survey.

c/ Map areas are defined in Figure 1 on page 5.

TABLE 8B  
REGIONAL DISTRIBUTION OF TOTAL NONRESIDENT SPORTSMEN EXPENDITURES IN COLORADO BY ACTIVITY PARTICIPATION IN 1973

Activity	Map Area b/													Total	
	1	2	3	4	5	5	5	7	8	9	10	11	12		13
Antelope	0	0	6,518	0	0	979	1,746	0	0	0	0	1,762	1,762	0	12,767
Bighorn Sheep	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	7,089	0	0	0	34,528	13,704	37,394	60,294	46,652	17,848	5,287	5,287	1,622	224,418
Deer	22,819	139,836	871,709	131,255	187,429	46,034	119,410	318,271	1,285,862	2,536,758	4,775,925	1,021,009	1,021,009	155,033	11,611,350
Elk	34,861	88,583	342,744	333,244	9,220	25,343	97,438	678,529	1,033,895	1,585,467	2,181,480	1,587,359	1,587,359	17,417	8,015,580
Mountain Lion	0	0	0	0	0	0	5,276	0	18,267	0	62,949	2,468	2,468	2,525	91,485
Fishing, Lake	49,537	1,535,789	1,156,418	2,578,349	39,454	29,796	210,658	1,069,443	1,447,073	3,246,505	516,469	1,011,198	1,011,198	503,724	13,394,413
Fishing, Stream	80,036	989,082	838,322	517,741	27,954	952	146,021	3,601,990	1,457,952	6,168,723	614,287	2,318,712	2,318,712	718,787	17,516,559
Duck	35,641	5,972	0	0	0	13,710	0	0	0	0	0	0	0	0	55,323
Geese	0	707	0	0	0	135,223	0	0	0	0	1,001	0	0	0	136,931
Small Game Birds	12,214	9,102	0	0	8,311	7,298	0	1,468	0	333	0	488	488	881	40,095
Small Game Mammals	0	27,003	0	0	0	567	0	0	0	0	32,695	1,123	1,123	4,492	65,880
Varmints	0	0	0	3,060	12,724	500	14,830	4,348	0	0	1,841	1,932	1,932	1,449	40,684
Total <sup>a/</sup>	235,108	2,812,163	3,215,711	3,563,649	285,092	294,930	609,083	5,711,443	5,303,343	13,584,438	8,233,257	5,951,338	5,951,338	1,405,930	51,205,485

a/Totals may not equal totals in Table 1 due to rounding.

b/Map areas are defined in Figure 1 on page 5.

TABLE 9A  
REGIONAL DISTRIBUTION OF NONRESIDENT SPORTSMEN EXPENDITURES  
IN MAP AREAS BY PERCENT, 1981

Map Area <sup>a/</sup>	Total
1	0.3
2	0.4
3	56.1
4	0.3
5	0.1
6	0.2
7	2.6
8	4.7
9	13.2
10	8.8
11	5.6
12	7.1
13	0.4
Total	99.8

<sup>a/</sup> Map areas are defined in Figure 1 on page 5.

TABLE 9B  
REGIONAL DISTRIBUTION OF NONRESIDENT SPORTSMEN EXPENDITURES  
IN MAP AREAS BY PERCENT, 1973

Map Area <sup>a/</sup>	Total
1	0.5%
2	5.5
3	6.3
4	7.0
5	0.6
6	0.6
7	1.2
8	11.2
9	10.4
10	26.5
11	16.1
12	11.6
13	2.7
Total	100.2%

<sup>a/</sup>Map areas are defined in Figure 1 on page 5.

Using Tables 4 through 9, planners can determine the sportsmen direct expenditure patterns for all sportsmen, residents and nonresidents, in each planning area. These tables show that the largest share of Colorado sportsmen expenditures was concentrated in the Denver metropolitan area and in the regions of Colorado where big game is found.



## CHAPTER IV

### COMPARISON OF THE 1968, 1973 AND 1981 EXPENDITURES SURVEYS

#### Introduction

The types of purchases making up the fixed and variable classes were identical for the 1968, 1973 and 1981 questionnaires, thus permitting direct comparisons of dollar estimates for fixed and variable expenses for the three surveys.\* As noted previously, the two basic distinctions between the 1973, 1968 and 1981 questionnaires are that (1) the 1973 questionnaire included 14 categories of hunting and fishing activities, compared with nine categories in 1968 and six categories in 1981, and (2) the 1973 and 1981 surveys obtained estimates of gross fixed and variable expenditures by 13 geographic planning areas in Colorado. However, such data in the 1973 and 1981 surveys could be aggregated for direct comparison with the 1968 survey data.

Tables 10 and 14 compare fixed and variable expenditures from the 1968, 1973 and 1981 surveys in actual dollars; i.e., not adjusted for inflation. Tables 12 and 16 compare fixed and variable expenditures estimated from the 1968, 1973 and 1981 surveys in constant dollars, by deflating the 1973 and 1981 figures by the Denver Consumer Price Index to remove the effects of inflation, thus making the figures for the three years comparable in terms of relative purchasing power. The rate of growth of total and per capita sportsmen spending has been greatly accelerated in recent years because of very high declines in the purchasing

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\*The detailed breakdown within categories, however, was revised in 1981.

TABLE 10  
RESIDENT SPORTSMEN EXPENDITURES IN CURRENT<sup>a/</sup> DOLLARS FOR 1968, 1973 AND 1981

Activity	1968			1973			1981		
	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita
Fishing	\$42,331,842	317,354	\$133.39	\$61,152,278	411,911	\$148.46	\$137,955,600	459,852	\$300
Deer	8,159,446	106,827	76.38	11,360,186	131,728	86.24	18,338,600	130,990	140
Elk	5,705,216	53,767	106.11	9,883,385	87,255	113.27	18,463,079	134,767	137
Small Game	8,619,358	167,139	51.57	9,795,218	134,236	72.97	23,352,440	108,616	215

Activity	1968			1973			1981		
	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita
Fishing	\$75,126,595	317,354	\$236.84	\$123,373,954	411,911	\$299.52	\$376,618,787	459,852	\$819
Deer	17,072,023	106,827	159.81	24,642,093	131,728	187.07	66,411,930	130,990	507
Elk	7,433,288	53,767	138.25	18,462,268	87,255	211.58	78,838,696	134,767	585
Small Game	13,665,285	167,139	81.76	17,896,538	134,236	133.32	84,720,480	108,616	780

a/ Not adjusted for inflation.

TABLE 11  
 PERCENTAGE CHANGE IN RESIDENT SPORTSMEN EXPENDITURES IN CURRENT<sup>a/</sup> DOLLARS

Activity	Variable Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	44.46%	11.30%	124.78%	102.07%	224.71%	124.90%
Deer	39.23	12.91	61.43	62.34	124.75	83.29
Elk	73.23	6.75	86.80	20.95	223.62	29.11
Small Game	13.64	41.50	138.41	194.46	170.93	316.91

Activity	Fixed Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	64.22%	26.47%	205.27%	173.44%	401.31%	245.80%
Deer	44.34	17.06	169.51	171.02	289.01	217.25
Elk	148.37	53.04	327.02	176.49	906.06	323.15
Small Game	30.96	63.06	373.39	485.06	519.97	854.01

a/ Not adjusted for inflation.

TABLE 12  
RESIDENT SPORTSMEN EXPENDITURES IN CONSTANT<sup>a/</sup> DOLLARS FOR 1968, 1973 AND 1981

Activity	1968			1973			1981		
	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita
Fishing	\$42,331,842	317,354	\$133.39	\$47,874,285	411,911	\$116.22	\$ 61,719,545	411,911	\$134.21
Deer	8,159,446	106,827	76.38	8,893,549	131,728	67.51	8,234,296	131,728	62.86
Elk	5,705,216	53,767	106.11	7,737,406	87,255	88.68	8,290,463	87,255	61.52
Small Game	8,619,358	167,139	51.57	7,668,383	134,236	57.13	10,485,582	134,236	96.54

Activity	1968			1973			1981		
	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita
Fishing	\$75,126,595	317,354	\$236.84	\$96,585,770	411,911	\$234.49	\$169,107,264	411,911	\$367.74
Deer	17,072,023	106,827	159.81	19,291,556	131,728	146.45	29,819,914	131,728	227.65
Elk	7,433,288	53,767	138.25	14,453,556	87,255	165.64	35,399,711	87,255	262.67
Small Game	13,665,285	167,139	81.76	14,010,663	134,236	104.37	38,040,717	134,236	350.23

a/ Current dollar figures were deflated by the Denver Consumer Price Index.

TABLE 13  
 PERCENTAGE CHANGE IN RESIDENT SPORTSMEN EXPENDITURES IN CONSTANT<sup>a/</sup> DOLLARS

Activity	Variable Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	13.09%	-12.87%	28.92%	15.48%	45.80%	0.60%
Deer	9.00	-11.61	-7.41	-6.89	0.92	-20.03
Elk	35.62	-16.43	7.15	-30.63	45.31	-42.02
Small Game	-11.03	10.78	36.74	68.98	21.65	87.20

Activity	Fixed Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	28.56%	-0.99%	75.09%	56.83%	125.10%	55.27%
Deer	13.00	-8.36	54.57	55.45	74.67	42.45
Elk	94.44	19.81	144.92	58.58	376.23	90.00
Small Game	2.53	27.65	171.51	235.57	178.37	328.36

<sup>a/</sup>Adjusted for inflation.

TABLE 14  
NONRESIDENT SPORTSMEN EXPENDITURES IN CURRENT<sup>a/</sup> DOLLARS FOR 1968, 1973 AND 1981

Activity	1968			1973			1981		
	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita	Variable Costs Total	Sportsmen Population	Variable Costs Per Capita
Fishing	\$18,143,507	148,365	\$122.29	\$25,702,355	189,406	\$135.70	\$ 9,534,924	19,782 <sup>c/</sup>	\$482
Deer	7,493,657	45,808	163.59	9,487,221	48,382	196.09	26,228,796	55,452	473
Elk	2,674,225	14,732	181.53	7,128,481	28,731	248.11	27,131,949	59,111	459
Small Game	227,334	3,624	62.73	289,749	2,998	96.55	998,675	4,645	215

Activity	1968			1973			1981		
	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita	Fixed Costs Total	Sportsmen Population	Fixed Costs Per Capita
Fishing	\$16,517,191	148,365	\$111.32	\$ 5,214,667	189,406	\$ 27.53	\$14,717,808	19,782 <sup>c/</sup>	\$744
Deer	8,344,164	45,808	182.15	2,124,108	48,382	43.90	50,184,060	55,452	905
Elk	3,442,574	14,732	233.68	887,084	28,731	30.88	50,421,683	59,111	853
Small Game	394,509	3,624	108.86	49,148	2,998	16.39	697,685 <sup>b/</sup>	4,645	150 <sup>b/</sup>

a/ Not adjusted for inflation.

b/ Based on 1973 spending shares.

c/ Season license holders only (excludes 161,395 two-day and 56,725 ten-day license holders).

TABLE 15  
 PERCENTAGE CHANGE IN NONRESIDENT SPORTSMEN EXPENDITURES IN CURRENT<sup>a/</sup> DOLLARS

Activity	Variable Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	41.66%	10.97%	NAb/	NAb/	NAb/	NAb/
Deer	26.60	19.87	176.46%	141.22%	250.01%	189.14%
Elk	166.56	36.68	280.61	85.00	914.57	152.85
Small Game	27.46	54.07	244.67	122.23	339.30	242.74

Activity	Fixed Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	-68.43%	-75.27%	NAb/	NAb/	NAb/	NAb/
Deer	-74.54	-75.90	2,262.59%	1,961.50%	501.43%	396.84%
Elk	-74.23	-86.79	5,583.98	2,662.31	1,364.65	265.03
Small Game	-87.54	-84.94	1,319.56	815.19	76.85	37.79

a/ Not adjusted for inflation.

b/ Population of sportsmen fishermen was redefined to exclude two-day and ten-day licenses in 1981.

TABLE 16

NONRESIDENT SPORTSMEN EXPENDITURES IN CONSTANT<sup>a/</sup> DOLLARS FOR 1968, 1973 AND 1981

Activity	1968			1973			1981		
	Variable Costs		Sportsmen	Variable Costs		Sportsmen	Variable Costs		Sportsmen
	Total	Per Capita	Population	Total	Per Capita	Population	Total	Per Capita	Population
Fishing	\$18,143,507	\$122.29	148,365	\$20,121,603	\$106.24	189,406	\$ 4,281,318	\$216.42	19,782 <sup>c/</sup>
Deer	7,493,657	163.59	45,808	7,427,261	153.51	48,382	11,777,108	212.38	55,452
Elk	2,674,225	181.53	14,732	5,580,674	194.24	28,731	12,182,636	206.10	59,111
Small Game	227,334	62.73	3,624	226,836	75.66	2,998	448,419	96.54	4,645

Activity	1968			1973			1981		
	Fixed Costs		Sportsmen	Fixed Costs		Sportsmen	Fixed Costs		Sportsmen
	Total	Per Capita	Population	Total	Per Capita	Population	Total	Per Capita	Population
Fishing	\$16,517,191	\$111.32	148,365	\$ 4,082,406	\$ 21.55	189,406	\$ 6,580,222	\$332.64	19,782 <sup>c/</sup>
Deer	8,344,164	182.15	45,808	1,662,900	34.37	48,382	22,533,366	406.36	55,452
Elk	3,442,574	233.68	14,732	694,471	24.18	28,731	22,640,062	383.01	59,111
Small Game	394,509	108.86	3,624	38,476	12.83	2,998	313,271 <sup>b/</sup>	67.35 <sup>b/</sup>	4,645

a/ Current dollar figures were deflated by the Consumer Price Index.

b/ Based on 1973 spending shares.

c/ Season license holders only (excludes 161,395 two-day and 56,725 ten-day license holders).



TABLE 17  
 PERCENTAGE CHANGE IN NONRESIDENT SPORTSMEN EXPENDITURES IN CONSTANT<sup>b/</sup> DOLLARS

Activity	Variable Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	10.90%	-13.12%	NAA/	NAA/	NAA/	NAA/
Deer	-0.89	-6.16	58.57%	38.36%	57.16%	29.82%
Elk	108.68	7.00	118.30	6.11	355.56	13.53
Small Game	-0.22	20.61	97.68	27.60	97.25	53.90

Activity	Fixed Costs					
	Percent Change Between 1968 & 1973		Percent Change Between 1973 & 1981		Percent Change Between 1968 & 1981	
	Total	Per Capita	Total	Per Capita	Total	Per Capita
Fishing	-75.28%	-80.64%	NAA/	NAA/	NAA/	NAA/
Deer	-80.07	-81.13	1,255.06%	1,082.31%	170.05%	123.09%
Elk	-79.83	-89.65	3,160.04	1,484.00	557.65	63.90
Small Game	-90.25	-88.21	714.20	424.94	-20.59	-38.13

a/ Population of sportsmen fishermen was redefined to exclude two-day and ten-day licenses in 1981.

b/ Adjusted for inflation.

power of the dollar. From 1968 to 1973, the value of the dollar fell by about 27.7 percent in Denver. The 1973-1981 period experienced vastly increased rates of inflation so that the purchasing power of a dollar fell by 122.7 percent in Denver. This means that in 1973 it took about 28 percent more dollars to buy the same market basket of goods typically purchased in 1968. Inflation was about  $5\frac{1}{2}$  percent per year during that five-year period. However, in 1981 it took more than double (2.23 times) the dollars to purchase the same goods as were purchased in 1973. The inflation rate was about  $15\frac{1}{2}$  percent per year over the eight-year period.

### Resident Sportsmen Expenditures

#### Variable Expenditures

In terms of actual or current dollars in the year spent (Tables 10 and 11), Colorado residents, on the average, increased total expenditures between 1968 and 1981 by 225 percent for fishing; 125 percent for deer; 224 percent for elk; and 171 percent for small game. Overall, variable expenditures in Colorado increased from \$65.5 million in 1968 to \$92.9 million in 1973 and to more than \$200 million in 1981 in current dollars. In per capita terms, current dollar variable resident expenditures per sportsman increased most rapidly for small game (partly because small game started from a low base year average expenditure). Per sportsman spending for fishing, deer, and elk, in that order, also rose from 1968 to 1981.

In constant dollars (Tables 12 and 13), with current dollars for 1981 and 1973 converted to dollars of equal purchasing power in 1968, total resident variable expenditures increased from \$65 million in 1968 to \$72 million in 1973 and to \$89 million in 1981. This was an increase in real

terms of 11 percent over the five-year period, from 1968 to 1973 and an increase of nearly 24 percent for the eight-year period from 1973 to 1981. In comparing expenditure changes in constant dollars for specific hunting and fishing activities, changes were registered for variable expenditures: for fishing (up 13 percent--1968 to 1973, up 29 percent--1973 to 1981), deer (up 9 percent, then down 7 percent), and elk (up 35.6 percent, then up 7.2 percent), and small game (down 11 percent then up 36.7 percent). On a per capita basis, constant dollar expenditures declined between 1968 and 1973 for all wildlife categories, except small game which registered an 11 percent increase. Between 1968 and 1973, per capita spending rose for small game and fish but fell for elk and deer.

#### Fixed Expenditures

Expenditures by residents for fixed expenditures associated with hunting and fishing activities in Colorado exhibited larger rates of change between 1968 and 1981 than did variable expenditures. In terms of current dollars (Tables 10 and 11), Colorado resident sportsmen increased their fixed expenditures from \$114.5 million in 1968 to \$185.2 million in 1973 and \$619.9 million in 1981. All categories of activities increased in both total and per capita fixed expenditures, with the largest percentage gains in total spending registered by elk hunters. Per capita spending rose most rapidly for small game hunting.

In constant dollars (Tables 12 and 13), fixed expenditures by Colorado residents on hunting and fishing equipment and facilities increased from \$114 million in 1968 to \$145 million in 1973 and to \$272 million in 1981, an increase of 26.6 percent for the 1968-73 period, and

an increase of 87.6 percent for the 1973-81 period. On a per capita basis, real expenditures on fixed items decreased for fishing, deer hunting, and other big game hunting, while increasing for elk hunting and small game hunting for the 1968-73 period. Per capita real expenditures on fixed items rose for all game categories for the 1973-81 period.

#### Shifts in Resident Real Expenditure Patterns for 1968, 1973 and 1981

Between 1968 and 1973, total resident fixed expenditures for deer hunting in constant dollars increased by 13 percent but between 1973 and 1981 they rose by more than 54 percent. Elk hunting fixed expenditures, in constant dollars, increased by 94 percent from 1968-73 and by 145 percent between 1973 and 1981. Also, in constant dollars, resident variable expenditures on deer hunting increased by 9 percent from 1968-73 and then fell by nearly 7 1/2 percent from 1973-81. Elk hunting resident variable expenditures increased 36 percent from 1968-73 and grew by over 7 percent from 1973-81.

Average resident fixed expenditures for deer hunters were greater than for elk hunters in 1968; by 1973, the average elk hunter was spending more on fixed items than the average deer hunter. This relationship continued to 1981. The early 1970s were marked by energy shortages and inflation. The 1973 survey reflects their impacts on sportsmen spending for capital items. Concerns about the availability of gasoline and the cost of vehicles and fuel apparently restricted the growth rates in expenditures for many fixed items used for hunting and fishing activities. But, per contract, socioeconomic data were not collected in the 1973 survey. Thus, it is impossible to relate spending to specific

changes in the socioeconomic characteristics of Colorado hunters and fishermen over the five-year period between 1968 and 1973. Much of the concern over energy shortages had abated by 1981. The burst of capital spending recorded by the 1980-1981 survey may, in part, reflect the pent-up demand built up during the 1970s.

### Nonresident Sportsmen Expenditures

#### Variable Expenditures

As estimated in current dollars (Tables 14 and 15), without deflating expenditures for inflation, nonresident Colorado sportsmen increased their variable expenditures from \$28.6 million in 1968 to 42.9 million in 1973 and to \$64.3 million in 1981. On this current dollar basis, all categories of hunting, except fishing, showed an increase in total expenditures. The decline in fishing expenditures resulted due to a change in assumptions concerning two-day and ten-day fishing licenses. The 1981 estimates assumed these nonresident tourists should be excluded from the relevant population. Spending on fishing by this group would be relatively small.

In constant 1968 dollars (Tables 16 and 17), nonresident Colorado sportsmen variable expenditures on hunting and fishing in the state were estimated to be \$28 million in 1968, \$33 million in 1973, and about \$29 million in 1981. The decline in the 1981 estimate reflects a change in the assumed sportsmen fisherman population to exclude two-day and ten-day licenses. Specifically, increases in constant dollar variable expenditures were registered for elk hunting (up 108 percent--1968-73, and up 118.3 percent--1973-81). Slight percentage decreases were noted for

variable expenditures by nonresidents between 1968 and 1973 for deer and small game hunting, but significant increases occurred between 1973 and 1981 (small game rose 98 percent and deer rose 58.6 percent).

On a per capita basis, declines in constant dollar variable expenditures between 1968 and 1973 occurred for fishing (down 13 percent) and deer hunting (down 6 percent). Deer hunting per capita spending rose by 38 percent from 1973-81. Increases in per capita variable expenditures, between 1968 and 1973, were noted for elk hunting (up 7 percent) and small game hunting (up 20.6 percent). Per capita spending continued up for small game (up 27 percent) and for elk (up 6 percent).

Significant shifts in the number of nonresident licenses sold occurred between 1968 and 1981. Most notably, elk licenses were up by 301 percent. Changes in fishing spending and numbers of licenses are not comparable due to the redefinition of the nonresident sportsmen fisher category.

#### Fixed Expenditures

Nonresident fixed expenditures fell drastically for all hunting and fishing activities between the years 1968 and 1973, in both current and constant dollars. For example, in constant dollars, the decline in fixed expenditures by nonresident sportsmen was from \$28.7 million in 1968 to \$6.5 million in 1973, a 77.4 percent decline. The survey did not elicit specific reasons for such a drastic decline in fixed expenditures. One possible reason for the decline in fixed expenditures by nonresidents was likely to have been a decrease in purchase of cabins and recreational lands in Colorado in 1973, compared with 1968. Nonresident real fixed

expenditures rose significantly from 1973 to 1981. In constant dollars, spending rose from \$6.5 million in 1973 to \$52 million in 1981, up 81 percent from 1968 and up 700 percent from 1973. Many hunters or fishermen--who in 1968 may have flown or driven an automobile into Colorado, bought a recreation vehicle (often for use during a single hunting or fishing trip) and then either towed it home or sold it at the conclusion of the trip--may in 1973 simply have driven their own vehicles into Colorado for these sportsmen activities. This tendency appears to have reversed by 1981 because fixed spending rose markedly.

In general, however, the survey does not offer a clear explanation for the drastic swings in fixed expenditures. Since the category of fixed expenditures raises several serious conceptual measurement problems, further research is needed to pinpoint sources of change in these categories over time and to validate the general level of expenditures for specific categories.

#### Summary

In comparing sportsmen expenditure data for the years 1968, 1973 and 1981, it is important that comparisons be based on constant dollar figures that are corrected for price inflation between the three years. The constant dollar figures show changes in expenditures due only to changes in the real worth of goods and services purchased, with the effect of the changing price level removed.

Also, it is important to consider both total and per capita expenditure data, to take into account shifts in numbers of resident and non-resident sportsmen between the two survey years. A change in the number

of sportsmen can exert a dramatic impact on per capita expenditures, particularly if the shift in numbers is large. Where large shifts occur, previous expenditure patterns are not likely to be representative of the new, larger group of sportsmen for a specific category.

Because of the large shifts in spending patterns on fixed expenditures between the survey years, extreme caution should be exercised in reaching conclusions about trends in these spending patterns. An erratic capital spending flow is likely to continue in the future. Moreover, the precautions noted earlier in interpreting fixed cost data obtained from surveys such as this one must be taken into account in reaching conclusions about changes in these spending patterns over time.



APPENDIX A

THE QUESTIONNAIRE FOR 1981 AND 1973

1981 QUESTIONNAIRE

STATE OF COLORADO

-59-

Richard D. Lamm, Governor

DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF WILDLIFE

Jack R. Grieb, Director

6060 Broadway

Denver, Colorado 80216 (825-1192)



Dear Turkey Hunter:

The Colorado Division of Wildlife needs your help. We are making a survey to find out more about sportsmen who hunt in Colorado. This will help us determine the importance of Colorado Wildlife programs.

You are one of a carefully selected sample, representative of all persons who purchased turkey hunting licenses in 1980. In order to ensure that our sample is truly representative, we need your expenditure information. This is important regardless of how much or how little you hunted in Colorado in 1980.

Please record only your own personal spending, or your share of a group's spending, for each item used for turkey hunting. Please return the completed form in the stamped addressed envelope which is enclosed. The Department of Economics, Colorado State University, is cooperating by collecting and tabulating the results of the survey.

Your participation is appreciated. This information will allow us to improve your turkey hunting conditions in Colorado.

Sincerely,

jaw

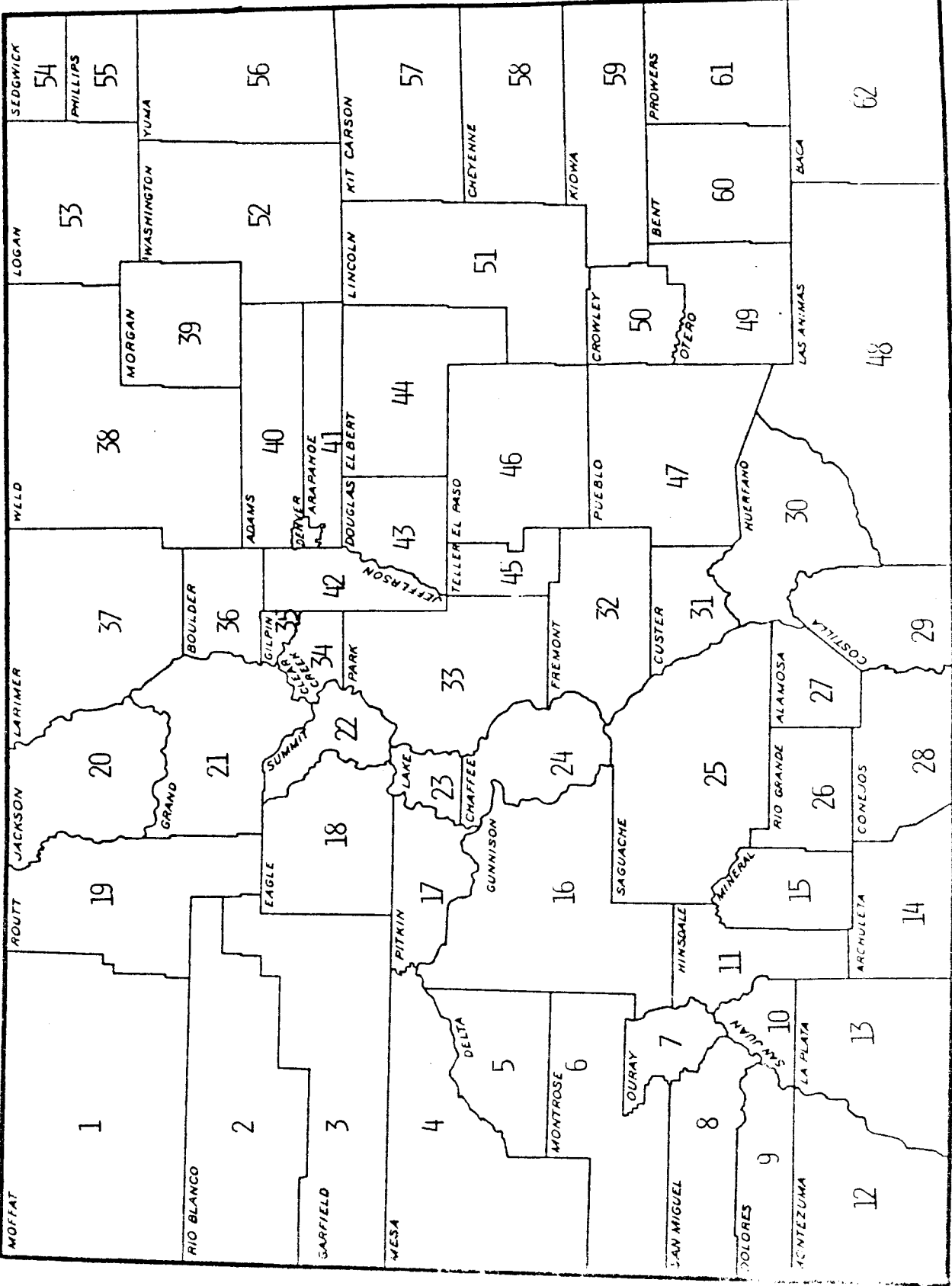
Enc.

NOTE: A map showing COLORADO COUNTY IDENTIFICATION NUMBERS is on the back of this letter. Please use this map to locate areas in which you hunted or purchased hunting-related items.

(please turn over)

DEPARTMENT OF NATURAL RESOURCES, Monte Pascoe, Executive Director • WILDLIFE COMMISSION, Wilbur Keenan, Chairman  
Donald Fernandez, Vice Chairman • James Smith, Secretary • Jean K. Tool, Member • Vernon C. Williams, Member  
Michael Higbee, Member • Sam Caudill, Member • Richard Divaldiss, Member

COLORADO COUNTY IDENTIFICATION NUMBERS



SCALE 1:500,000  
 G 10 21 JO 40 50

## DIVISION OF WILDLIFE

Jack R. Grieb, Director  
6060 Broadway  
Denver, Colorado 80216 (825-1192)



Dear Colorado Fisher:

The Colorado Division of Wildlife needs your help. We are making a survey to find out more about sportsmen who fish in Colorado. This will help us determine the importance of Colorado Wildlife programs.

You are one of a carefully selected sample, representative of all persons who purchased Colorado fishing licenses in 1980. In order to ensure that our sample is truly representative, we need your expenditure information. This is important regardless of how much or how little you fished in Colorado in 1980.

Please record only your own personal spending, or your share of a group's spending, for each item used for fishing. Please return the completed form in the stamped addressed envelope which is enclosed. The Department of Economics, Colorado State University, is cooperating by collecting and tabulating the results of the survey.

Your participation is appreciated. This information will allow us to improve your fishing conditions in Colorado.

Sincerely,

jaw

Enc.

NOTE: A map showing COLORADO COUNTY IDENTIFICATION NUMBERS is on the back of this letter. Please use this map to locate areas in which you fished or purchased fishing related items.

(please turn over)

START OF QUESTIONNAIRE

Q-1 What is your total personal cost for fuel and related travel costs per trip to travel to and from the fishing site which you visited most often in 1980?  
 \$ \_\_\_\_\_ PER TRIP

Q-2 What type of vehicle or transport did you use to travel from your residence to the fishing site(s)? (please circle main vehicle type)

1. ECONOMY CAR OR TRUCK
2. 4-WHEEL DRIVE FULL SIZE
3. ECONOMY 4-WHEEL DRIVE
4. FULL-SIZE SEDAN OR PICKUP
5. BUS
6. TRAIN
7. COMMERCIAL PLANE
8. PRIVATE OR RENTAL PLANE
9. MOTORCYCLE
10. OTHER (please specify) \_\_\_\_\_

Q-3 What was the miles per gallon achieved by the vehicle most used in your fishing trips? (excluding bus, train or commercial plane)  
 MILES PER GALLON \_\_\_\_\_

Q-4 We are concerned that rising costs of fuel and related items may change your fishing activities in Colorado in the future. In Question 1 you indicated how much it cost you, personally, per trip to travel to and from your Colorado fishing site. (site visited most often in 1980)

Please indicate how high this cost figure would have to be to cause you to stop going to the fishing site which you visited in 1980.

COST TO STOP VISITING 1980 SITE \$ \_\_\_\_\_ PER TRIP

Q-5 Please show the purchase price of multipurpose items purchased in 1980, the percent share of total use of the item for fishing, and the county code for the place of purchase. If the item was purchased outside Colorado, please write OUTSIDE. A map on the back of the cover letter shows the county codes for Colorado.

<u>Multipurpose Items Purchased in 1980 Used for Fishing</u>	<u>Purchase Price</u>	<u>% Used for Fishing</u>	<u>County Code Number (See Map)</u>
Family Vehicle (car or truck)	_____	_____	_____
Recreational Vehicle	_____	_____	_____
Cabin	_____	_____	_____
Land	_____	_____	_____
Trailer (any type)	_____	_____	_____
Camper for Pickup	_____	_____	_____
Boats and Boat Equipment	_____	_____	_____
Fishing Poles and Reels	_____	_____	_____
Related Equipment (bait, etc.)	_____	_____	_____
Horses	_____	_____	_____
Miscellaneous (please list below)	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Q-6 PERSONAL SPENDING FOR FISHING IN 1980 (exclude purchases shown in Question 5)  
 Please show your personal expenditures for Colorado fishing in the first column. Use the remaining  
 columns to show the Colorado counties where the purchases were made. The last column is for purchases  
 outside Colorado. Please show only your share of costs if you fished in a group.

PURCHASE CATEGORY	DOLLARS IN COLORADO	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	NON-COLO. PURCHASE
Transportation	\$	ID	\$	ID	\$	ID	\$	\$
Communication	\$	ID	\$	ID	\$	ID	\$	\$
Auto Dealers	\$	ID	\$	ID	\$	ID	\$	\$
Gas Stations	\$	ID	\$	ID	\$	ID	\$	\$
Eating Places	\$	ID	\$	ID	\$	ID	\$	\$
Hotel-Motel	\$	ID	\$	ID	\$	ID	\$	\$
Campgrounds	\$	ID	\$	ID	\$	ID	\$	\$
Retail Stores	\$	ID	\$	ID	\$	ID	\$	\$
Entertainment	\$	ID	\$	ID	\$	ID	\$	\$
Health Services	\$	ID	\$	ID	\$	ID	\$	\$
Other Services	\$	ID	\$	ID	\$	ID	\$	\$
City, County Gov.	\$	ID	\$	ID	\$	ID	\$	\$
State Gov.	\$	ID	\$	ID	\$	ID	\$	\$
Fed. Gov.	\$	ID	\$	ID	\$	ID	\$	\$
Individuals	\$	ID	\$	ID	\$	ID	\$	\$
All Other	\$	ID	\$	ID	\$	ID	\$	\$

EXPLANATION OF PURCHASE CATEGORIES

- Transportation - trucking, bus service, taxi, train, airplane, non-government shipping services, storage services
- Communication - telephone, telegraph
- Auto Dealers - auto sales, auto rental, auto repair, parts, fuel
- Gas Stations - fuel, auto service or repair, parts, rentals, etc.
- Eating Places - restaurants, fast food places, delivered prepared food, taverns, bars
- Hotel-Motel - hotels, motels, rooming houses, other commercial rooms for rent
- Campgrounds - commercial campgrounds, trailer parks
- Retail Stores - groceries, candy stores, bakeries, variety, hardware, furniture, fuel, gifts, sporting goods, catalog stores, general merchandise, jewelry, souvenir shops, leather and apparel stores, auto parts not purchased from gas stations or auto dealers
- Entertainment - movies, ski tows, tours, opera, theatres, golf courses, sports clubs, museums, photography studios
- Health Services - doctors, public and private hospitals, clinics, dentists, other medical services
- Other Services - laundry, non-auto leasing, non-auto repairs, clubs, horses, meat processing, taxidermy
- City and County Government - fees, fines, permits, books, maps, taxes, licenses
- State Government - fees, fines, permits, books, maps, taxes, licenses
- Federal Government - fees, fines, permits, books, maps, taxes, licenses
- Individuals - access across private land, casual labor, baby-sitting, private guide service
- All Other Industry - purchases direct from manufacturer or wholesaler, banking charges, real estate broker fees

Q-7 We are interested in knowing about each fishing trip you took in 1980, both inside and outside Colorado. Please list the COLORADO COUNTY IDENTIFICATION NUMBER or name of state and nearest city or county if the trip was outside Colorado.

Information on Each Fishing Trip During 1980 Season

TRIP NUMBER	Fishing Site COLORADO COUNTY IDENTIFICATION NUMBER or State and nearest city or county if non-CoLo.	ROUND TRIP DISTANCE	NUMBER OF DAYS FISHED	NUMBER IN PARTY
1				
2				
3				
4				
5				
6				

Q-8 We are interested in your previous fishing activity both inside and outside Colorado. For each fishing trip in 1979 (or most recent year), please list the COLORADO COUNTY IDENTIFICATION NUMBER. Please list the name of the state and nearest city or county if the trip was outside Colorado.

Information on Each Fishing Trip During 1979 Season (or most recent year)

TRIP NUMBER	Fishing Site COLORADO COUNTY IDENTIFICATION NUMBER or State and nearest city or county if non-CoLo.	ROUND TRIP DISTANCE	NUMBER OF DAYS FISHED	NUMBER IN PARTY
1				
2				
3				
4				
5				
6				



Q-9 Did you tow a trailer, or a vehicle or use a camper on your fishing trips?  
If so, please indicate below. (please circle all which apply)

1. PICKUP WITH CAMPER
2. PICKUP WITH SHELL
3. ANOTHER VEHICLE (such as 4-WD)
4. CAMP TRAILER
5. LARGE TRAVEL TRAILER
6. MOTORCYCLE, SNOWMOBILE OR HORSE TRAILER

Q-10 If you own property in Colorado (land, cabin, etc.) which is used for fishing, please complete the following:

Location of Property, COUNTY CODE NUMBER \_\_\_\_\_  
Cabin Size in Square Feet Floor Space \_\_\_\_\_ SQ. FT.  
Amount of Land in Acres \_\_\_\_\_ ACRES

Q-11 If you could sell your fishing right for fishing in the site which you visited most in 1980, what would you charge per year?  
\$ \_\_\_\_\_ PER YEAR

Q-12 If the site where you fished most in 1980 was unavailable for fishing, how many additional round trip miles would you be willing to travel to obtain a similar quality of fishing experience?  
EXTRA ROUND TRIP MILES \_\_\_\_\_

Q-13 If you knew that your chance of catching fish could be increased by 10 percent by traveling to a more distant site, how many additional round-trip miles would you be willing to travel?  
EXTRA ROUND TRIP MILES \_\_\_\_\_

Q-14 Did you fish primarily on: (circle one)

1. FEDERAL LAND
2. STATE LAND
3. PRIVATELY OWNED LAND
4. DON'T KNOW
5. OTHER (please explain) \_\_\_\_\_

Q-15 If you fished on federal land, was it: (circle one)

1. FOREST SERVICE
2. BUREAU OF LAND MANAGEMENT

Q-16 Please indicate your feeling about crowding in the area where you fished in 1980. (circle one)

1. FISHER CROWDING WAS NOT A PROBLEM
2. AREA WAS TOO CROWDED, BUT WILL STILL FISH THERE
3. AREA TOO CROWDED, WILL TRY A DIFFERENT AREA IN COLORADO
4. AREA TOO CROWDED, WILL NOT FISH IN COLORADO NEXT YEAR BECAUSE OF CROWDING

Q-17 How many other fishing parties did you see in your fishing area per day?  
NUMBER OF OTHER PARTIES SEEN \_\_\_\_\_ PER DAY

Q-18 Please note the following reasons why you fish. (circle a number for each reason - 10 is the highest rating)

1	2	3	4	5	6	7	8	9	10	TROPHY
1	2	3	4	5	6	7	8	9	10	FOOD
1	2	3	4	5	6	7	8	9	10	SPORT
1	2	3	4	5	6	7	8	9	10	SIGHTING WILD ANIMALS
1	2	3	4	5	6	7	8	9	10	OTHER (please describe)

---

- Q-19 Please indicate your total number of years of fishing experience for all kinds of fish both inside and outside of Colorado.  
FISHING EXPERIENCE \_\_\_\_\_ YEARS
- Q-20 How many persons are there living with you in your household (including yourself)?  
NUMBER OF PERSONS \_\_\_\_\_
- Q-21 How many persons living with you in your household (including yourself) like to fish?  
NUMBER OF PERSONS \_\_\_\_\_
- Q-22 What was your age the first time you ever went on a fishing trip?  
AGE \_\_\_\_\_ YEARS
- Q-23 What is your age now?  
AGE \_\_\_\_\_ YEARS
- Q-24 How many days did you spend in all outdoor sports and recreation both inside and outside Colorado in 1980?  
NUMBER OF DAYS \_\_\_\_\_
- Q-25 Are you presently: (please circle number which applies most)
1. AN EMPLOYEE
  2. SELF EMPLOYED
  3. RETIRED
  4. UNEMPLOYED
  5. FULL-TIME HOMEMAKER
  6. A STUDENT
  7. OTHER (please specify) \_\_\_\_\_
- Q-26 If you are employed, which of the following most closely describes your occupation? (circle one)
1. FARM WORKER
  2. SERVICE WORKER
  3. GENERAL LABOR
  4. OPERATIVE
  5. CRAFTSMAN
  6. CLERICAL
  7. SALESWORKER
  8. MANAGER-ADMINISTRATOR
  9. PROFESSIONAL-TECHNICAL
- Q-27 Please enter your U. S. Post Office ZIP Code for the place where you lived during fishing season in 1980.  
ZIP CODE OF RESIDENCE \_\_\_\_\_
- Q-28 How would you classify your spending for fishing in comparison to your household income? (please circle number)
1. A VERY SMALL PART
  2. A SMALL PART
  3. A SIGNIFICANT PART
  4. AN IMPORTANT PART
  5. A VERY IMPORTANT PART

Q-29 What was your household income (family) from all sources, before taxes, in 1980?  
(please circle number)

- |                      |                                      |
|----------------------|--------------------------------------|
| 1. LESS THAN \$2,000 | 16. 30,000 to 31,999                 |
| 2. 2,000 to 3,999    | 17. 32,000 to 33,999                 |
| 3. 4,000 to 5,999    | 18. 34,000 to 35,999                 |
| 4. 6,000 to 7,999    | 19. 36,000 to 37,999                 |
| 5. 8,000 to 9,999    | 20. 38,000 to 39,999                 |
| 6. 10,000 to 11,999  | 21. 40,000 to 41,999                 |
| 7. 12,000 to 13,999  | 22. 42,000 to 43,999                 |
| 8. 14,000 to 15,999  | 23. 44,000 to 45,999                 |
| 9. 16,000 to 17,999  | 24. 46,000 to 47,999                 |
| 10. 18,000 to 19,999 | 25. 48,000 to 49,999                 |
| 11. 20,000 to 21,999 | 26. 50,000 to 51,999                 |
| 12. 22,000 to 23,999 | 27. 52,000 to 53,999                 |
| 13. 24,000 to 25,999 | 28. 54,000 to 55,999                 |
| 14. 26,000 to 27,999 | 29. 56,000 to 57,999                 |
| 15. 28,000 to 29,999 | 30. 58,000 to 59,999                 |
|                      | 31. If above 59,999 (please specify) |
-

STATE OF COLORADO  
Richard D. Lamm, Governor  
DEPARTMENT OF NATURAL RESOURCES  
**DIVISION OF WILDLIFE**  
Jack R. Grieb, Director  
6060 Broadway  
Denver, Colorado 80216 (825-1192)

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Dear Bear Hunter:

The Colorado Division of Wildlife needs your help. We are making a survey to find out more about sportsmen who hunt in Colorado. This will help us determine the importance of Colorado Wildlife programs.

You are one of a carefully selected sample, representative of all persons who purchased bear hunting licenses in 1980. In order to ensure that our sample is truly representative, we need your expenditure information. This is important regardless of how much or how little you hunted in Colorado in 1980.

Please record only your own personal spending, or your share of a group's spending, for each item used for bear hunting. Please return the completed form in the stamped addressed envelope which is enclosed. The Department of Economics, Colorado State University, is cooperating by collecting and tabulating the results of the survey.

Your participation is appreciated. This information will allow us to improve your bear hunting conditions in Colorado.

Sincerely,

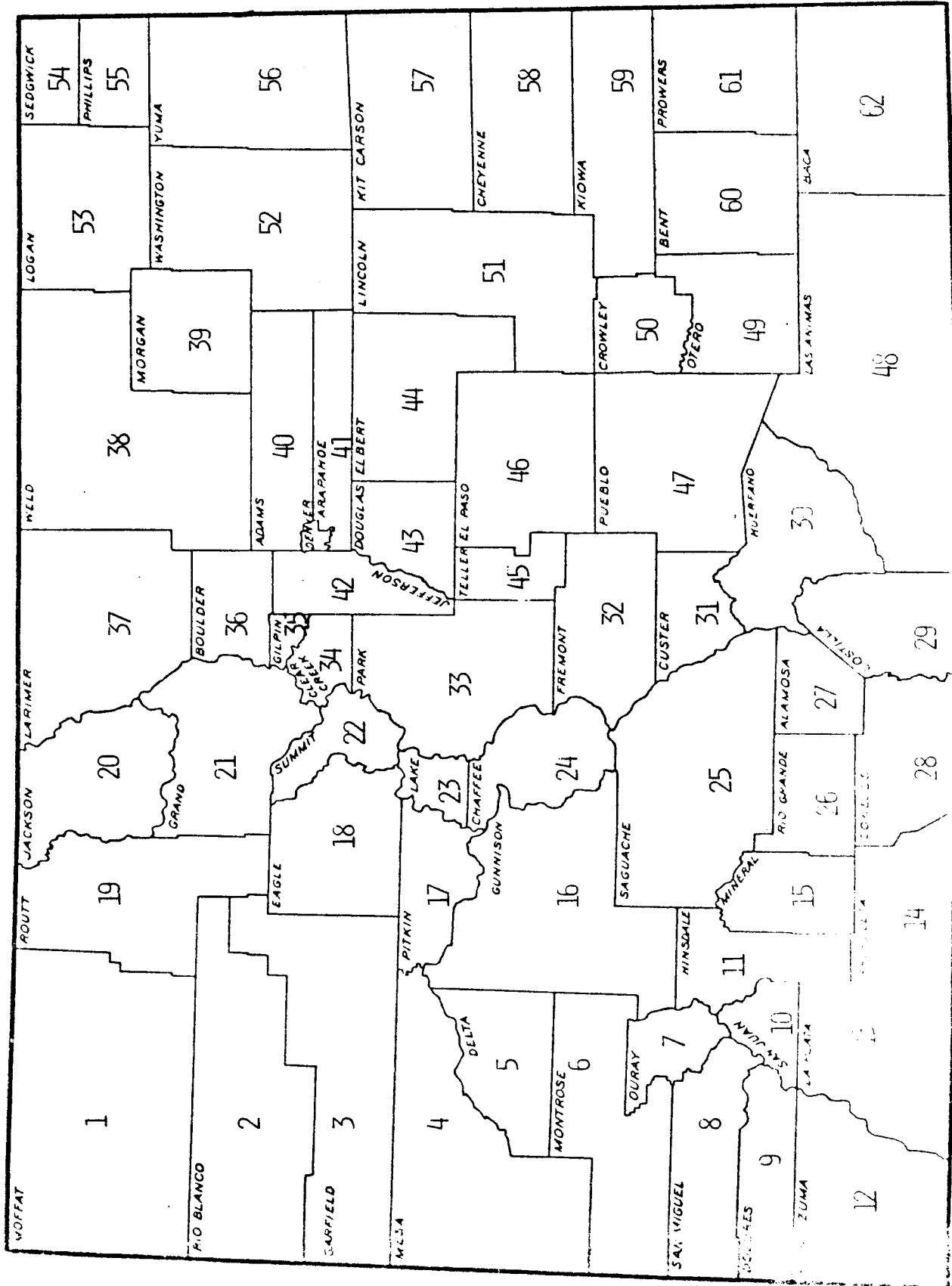
jaw

Enc.

NOTE: A map showing COLORADO COUNTY IDENTIFICATION NUMBERS is on the back of this letter. Please use this map to locate areas in which you hunted or purchased hunting-related items.

(please turn in)

COLORADO COUNTY IDENTIFICATION NUMBERS



START OF QUESTIONNAIRE

Q-1 What is your total personal cost for fuel and related travel costs per trip to travel to and from the bear hunting site which you visited most often in 1980?

\$ \_\_\_\_\_ PER TRIP

Q-2 What type of vehicle or transport did you use to travel from your residence to the bear hunting site(s)? (please circle main vehicle type)

1. ECONOMY CAR OR TRUCK
2. 4-WHEEL DRIVE FULL SIZE
3. ECONOMY 4-WHEEL DRIVE
4. FULL-SIZE SEDAN OR PICKUP
5. BUS
6. TRAIN
7. COMMERCIAL PLANE
8. PRIVATE OR RENTAL PLANE
9. MOTORCYCLE
10. OTHER (please specify) \_\_\_\_\_

Q-3 What was the miles per gallon achieved by the vehicle most used in your bear hunting trips? (excluding bus, train or commercial plane)

\_\_\_\_\_ MILES PER GALLON

Q-4 We are concerned that rising costs of fuel and related items may change your hunting activities in Colorado in the future. In Question 1 you indicated how much it cost you, personally, per trip to travel to and from your Colorado hunting sites. (site visited most often in 1980)

Please indicate how high this cost figure would have to be to cause you to stop going to the hunting site which you visited in 1980.

COST TO STOP VISITING 1980 SITE \$ \_\_\_\_\_ PER TRIP

Q-5 Please show the purchase price of multipurpose items purchased in 1980, the percent share of total use of the item for bear hunting, and the county code for the place of purchase. If the item was purchased outside Colorado, please write OUTSIDE. A map on the back of the cover letter shows the county codes for Colorado.

<u>Multipurpose Items Purchased in 1980 Used for Bear Hunting</u>	<u>Purchase Price</u>	<u>% Used for Bear Hunting</u>	<u>County Code Number (See Map)</u>
Family Vehicle (car or truck)	_____	_____	_____
Recreational Vehicle	_____	_____	_____
Cabin	_____	_____	_____
Land	_____	_____	_____
Trailer (any type)	_____	_____	_____
Camper for Pickup	_____	_____	_____
Camping Equipment	_____	_____	_____
Boats and Boat Equipment	_____	_____	_____
Firearms or Archery Equipment	_____	_____	_____
Related Equipment (ammunition, etc.)	_____	_____	_____
Horses or Dogs	_____	_____	_____
Miscellaneous (please list below)	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Q-6 PERSONAL SPENDING FOR BEAR HUNTING IN 1980 (exclude purchases shown in Question 5)  
 Please show your personal expenditures for Colorado bear hunting in the first column. Use the remaining columns to show the Colorado counties where the purchases were made. The last column is for purchases outside Colorado. Please show only your share of costs if you hunted with a group.

PURCHASE CATEGORY	DOLLARS IN COLORADO	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	COUNTY ID, DOLLARS	NO.-COLO. PURCHASE
Transportation	\$	ID	\$	ID	\$	ID	\$
Communication	\$	ID	\$	ID	\$	ID	\$
Auto Dealers	\$	ID	\$	ID	\$	ID	\$
Gas Stations	\$	ID	\$	ID	\$	ID	\$
Eating Places	\$	ID	\$	ID	\$	ID	\$
Hotel-Motel	\$	ID	\$	ID	\$	ID	\$
Campgrounds	\$	ID	\$	ID	\$	ID	\$
Retail Stores	\$	ID	\$	ID	\$	ID	\$
Entertainment	\$	ID	\$	ID	\$	ID	\$
Health Services	\$	ID	\$	ID	\$	ID	\$
Other Services	\$	ID	\$	ID	\$	ID	\$
City, County Gov.	\$	ID	\$	ID	\$	ID	\$
State Gov.	\$	ID	\$	ID	\$	ID	\$
Fed. Gov.	\$	ID	\$	ID	\$	ID	\$
Individuals	\$	ID	\$	ID	\$	ID	\$
ALL Other	\$	ID	\$	ID	\$	ID	\$

EXPLANATION OF PURCHASE CATEGORIES

- Transportation - trucking, bus service, taxi, train, airplane, non-government shipping services, storage services
- Communication - telephone, telegraph
- Auto Dealers - auto sales, auto rental, auto repair, parts, fuel
- Gas Stations - fuel, auto service or repair, parts, rentals, etc.
- Eating Places - restaurants, fast food places, delivered prepared food, taverns, bars
- Hotel-Motel - hotels, motels, rooming houses, other commercial rooms for rent
- Campgrounds - commercial campgrounds, trailer parks
- Retail Stores - groceries, candy stores, bakeries, variety, hardware, furniture, fuel, gifts, sporting goods, catalog stores, general merchandise, jewelry, souvenir shops, leather and apparel stores, auto parts not purchased from gas stations or auto dealers
- Entertainment - movies, ski tows, tours, opera, theatres, golf courses, sports clubs, museums, photography studios
- Health Services - doctors, public and private hospitals, clinics, dentists, other medical services
- Other Services - laundry, non-auto leasing, non-auto repairs, clubs, horses, meat processing, taxidermy
- City and County Government - fees, fines, permits, books, maps, taxes, licenses
- State Government - fees, fines, permits, books, maps, taxes, licenses
- Federal Government - fees, fines, permits, books, maps, taxes, licenses
- Individuals - access across private land, casual labor, baby-sitting, private guide service
- All Other Industry - purchases direct from manufacturer or wholesaler, banking charges, real estate broker fees

Q-7 We are interested in knowing about each bear hunting trip you took in 1980, both inside and outside Colorado. Please list the COLORADO COUNTY IDENTIFICATION NUMBER or name of state and nearest city or county if the trip was outside Colorado.

Information on Each Bear Hunting Trip During 1980 Season

TRIP NUMBER	Hunting Site COLORADO COUNTY IDENTIFICATION NUMBER or State and nearest city or county if non-Colo.	ROUND TRIP DISTANCE	NUMBER OF DAYS HUNTED	NUMBER IN PARTY
1				
2				
3				
4				
5				
6				

Q-8 We are interested in your previous bear hunting activity both inside and outside Colorado. For each bear hunting trip in 1979 (or most recent year), please list the COLORADO COUNTY IDENTIFICATION NUMBER. Please list the name of the state and nearest city or county if the trip was outside Colorado.

Information on Each Bear Hunting Trip During 1979 Season (or most recent year)

TRIP NUMBER	Hunting Site COLORADO COUNTY IDENTIFICATION NUMBER or State and nearest city or county if non-Colo.	ROUND TRIP DISTANCE	NUMBER OF DAYS HUNTED	NUMBER IN PARTY
1				
2				
3				
4				
5				
6				



- Q-9 Did you tow a trailer, or a vehicle or use a camper on your hunting trips?  
If so, please indicate below. (please circle all which apply)
1. PICKUP WITH CAMPER
  2. PICKUP WITH SHELL
  3. ANOTHER VEHICLE (such as 4-WD)
  4. CAMP TRAILER
  5. LARGE TRAVEL TRAILER
  6. MOTORCYCLE, SNOWMOBILE OR HORSE TRAILER
- Q-10 If you own property in Colorado (land, cabin, etc.) which is used for bear hunting, please complete the following:  
Location of Property, COUNTY CODE NUMBER \_\_\_\_\_  
Cabin Size in Square Feet Floor Space \_\_\_\_\_ SQ. FT.  
Amount of Land in Acres \_\_\_\_\_ ACRES
- Q-11 If you could sell your hunting right for hunting bear in the site which you visited in 1980, what would you charge per year?  
\$ \_\_\_\_\_ PER YEAR
- Q-12 If you killed a bear in 1980, please answer the following question.  
If you hadn't killed a bear in 1980, how many hunting trips would you have taken assuming that you never killed a bear?  
HUNTING TRIPS \_\_\_\_\_
- Q-13 The bear hunting season was limited to a few days in 1980. How many more bear hunting trips would you have taken in 1980 if the season had not been limited to a certain number of days?  
HUNTING TRIPS \_\_\_\_\_
- Q-14 If the site where you hunted bear in 1980 was unavailable for hunting, how many additional round trip miles would you be willing to travel to obtain a similar quality of hunting experience.  
EXTRA ROUND TRIP MILES \_\_\_\_\_
- Q-15 If you knew that your chance of shooting a bear could be increased by 10 percent by traveling to a more distant site, how many additional round-trip miles would you be willing to travel?  
EXTRA ROUND TRIP MILES \_\_\_\_\_
- Q-16 How many opportunities to shoot a bear in Colorado did you have in 1980?  
SHOOTING OPPORTUNITIES \_\_\_\_\_
- Q-17 What is your usual number of bear shooting opportunities?  
SHOOTING OPPORTUNITIES \_\_\_\_\_
- Q-18 Did you hunt primarily on: (circle one)
1. FEDERAL LAND
  2. STATE LAND
  3. PRIVATELY OWNED LAND
  4. DON'T KNOW
  5. OTHER (please explain) \_\_\_\_\_
- Q-19 If you hunted on federal land, was it: (circle one)
1. FOREST LAND
  2. BUREAU OF LAND MANAGEMENT

- Q-20 Please indicate your feeling about hunter crowding in the area where you hunted bear in 1980. (circle one)
1. HUNTER CROWDING WAS NOT A PROBLEM
  2. AREA WAS TOO CROWDED, BUT WILL STILL HUNT THERE
  3. AREA TOO CROWDED, WILL TRY A DIFFERENT AREA IN COLORADO
  4. AREA TOO CROWDED, WILL NOT HUNT IN COLORADO NEXT YEAR BECAUSE OF CROWDING
- Q-21 Did the presence of livestock, fences or a shortage of animal feed due to livestock grazing reduce your bear hunting opportunities in the region where you hunted in 1980? (please circle)
1. YES, VERY MUCH
  2. SOME
  3. SLIGHTLY
  4. NOT AT ALL
- Q-22 How many other hunting parties did you see in your hunting area per day?  
NUMBER OF OTHER PARTIES SEEN \_\_\_\_\_ PER DAY
- Q-23 How many shots did you hear fired per day while bear hunting? (exclude your own)  
SHOTS HEARD \_\_\_\_\_ PER DAY
- Q-24 Please note the following reasons why you hunt bear. (circle a number for each reason - 10 is the highest rating)
- |   |   |   |   |   |   |   |   |   |    |                         |
|---|---|---|---|---|---|---|---|---|----|-------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | TROPHY                  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | FOOD                    |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | SPORT                   |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | SIGHTING WILD ANIMALS   |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | OTHER (please describe) |
- 
- Q-25 Did you kill a bear in Colorado this season (1980)? (circle one)
1. YES, I KILLED A BEAR IN COLORADO IN 1980
  2. NO, I DIDN'T KILL A BEAR IN COLORADO
- Q-26 If you did kill a bear in Colorado in 1980, please indicate the place where you killed it using the COLORADO COUNTY IDENTIFICATION CODE (see map).  
COUNTY CODE WHERE KILLED \_\_\_\_\_
- Q-27 Please indicate the number of bear which you have killed prior to 1980. (both inside and outside Colorado)  
BEAR KILLED PRIOR TO 1980 \_\_\_\_\_
- Q-28 Please indicate your total number of years of hunting experience for all kinds of game both inside and outside of Colorado.  
HUNTING EXPERIENCE \_\_\_\_\_ YEARS
- Q-29 Did you kill a bear outside Colorado in 1980. (circle one)
1. YES, I KILLED A BEAR OUTSIDE COLORADO
  2. NO, I DIDN'T KILL A BEAR OUTSIDE COLORADO
- Q-30 How many persons are there living with you in your household (including yourself)?  
NUMBER OF PERSONS \_\_\_\_\_
- Q-31 How many persons living with you in your household (including yourself) like to hunt?  
NUMBER OF PERSONS \_\_\_\_\_

- Q-32 What was your age the first time you ever went on a hunting trip?  
AGE \_\_\_\_\_ YEARS
- Q-33 What is your age now? AGE \_\_\_\_\_ YEARS
- Q-34 How many days did you spend in all outdoor sports and recreation both inside and outside Colorado in 1980?  
NUMBER OF DAYS \_\_\_\_\_
- Q-35 Are you presently: (please circle number which applies most)
1. AN EMPLOYEE
  2. SELF EMPLOYED
  3. RETIRED
  4. UNEMPLOYED
  5. FULL-TIME HOMEMAKER
  6. A STUDENT
  7. OTHER (please specify) \_\_\_\_\_
- Q-36 If you are employed, which of the following most closely describes your occupation?
1. FARM WORKER
  2. SERVICE WORKER
  3. GENERAL LABOR
  4. OPERATIVE
  5. CRAFTSMAN
  6. CLERICAL
  7. SALESWORKER
  8. MANAGER-ADMINISTRATOR
  9. PROFESSIONAL-TECHNICAL
- Q-37 Please enter your U. S. Post Office ZIP Code for the place where you lived during bear hunting season in 1980.  
ZIP CODE OF RESIDENCE \_\_\_\_\_
- Q-38 How would you classify your spending for bear hunting in comparison to your household income? (please circle number)
1. A VERY SMALL PART
  2. A SMALL PART
  3. A SIGNIFICANT PART
  4. AN IMPORTANT PART
  5. A VERY IMPORTANT PART
- Q-39 What was your household income (family) from all sources, before taxes, in 1980?  
(please circle number)
- |                      |                                      |
|----------------------|--------------------------------------|
| 1. LESS THAN \$2,000 | 16. 30,000 to 31,999                 |
| 2. 2,000 to 3,999    | 17. 32,000 to 33,999                 |
| 3. 4,000 to 5,999    | 18. 34,000 to 35,999                 |
| 4. 6,000 to 7,999    | 19. 36,000 to 37,999                 |
| 5. 8,000 to 9,999    | 20. 38,000 to 39,999                 |
| 6. 10,000 to 11,999  | 21. 40,000 to 41,999                 |
| 7. 12,000 to 13,999  | 22. 42,000 to 43,999                 |
| 8. 14,000 to 15,999  | 23. 44,000 to 45,999                 |
| 9. 16,000 to 17,999  | 24. 46,000 to 47,999                 |
| 10. 18,000 to 19,999 | 25. 48,000 to 49,999                 |
| 11. 20,000 to 21,999 | 26. 50,000 to 51,999                 |
| 12. 22,000 to 23,999 | 27. 52,000 to 53,999                 |
| 13. 24,000 to 25,999 | 28. 54,000 to 55,999                 |
| 14. 26,000 to 27,999 | 29. 56,000 to 57,999                 |
| 15. 28,000 to 29,999 | 30. 58,000 to 59,999                 |
|                      | 31. If above 59,999 (please specify) |
- \_\_\_\_\_

END OF QUESTIONNAIRE

1973 QUESTIONNAIRE

STATE OF COLORADO

John D. Vanderhoof, Governor

-77-



DEPARTMENT OF NATURAL RESOURCES

## DIVISION OF WILDLIFE

Jack R. Grieb, Director

6060 Broadway

Denver, Colorado 80216 (825-1192)

Dear Hunter or Fisherman:

The Colorado Division of Wildlife needs your help! We are making a survey to find out more about all sportsmen who hunt and fish in Colorado. Because the hunting and fishing population is decreasing in relation to the total population and in light of the current energy crisis, the information you can provide us is very important to the future of your sport. We will use it to help us progressively develop the fish and wildlife resources of our state.

You are one of a carefully selected sample, representative of all persons who purchased hunting and fishing licenses in Colorado during 1973. In order to ensure that the information we obtain from this sample is meaningful, we need your expenditure information. Your expenditure information is important regardless of how little or how much you hunted and/or fished in Colorado in 1973.

Please read the entire questionnaire before filling it out in order that you may acquaint yourself with the information we are seeking. Estimations are satisfactory when filling it out. Record only your own expenditures, or your share, for 1973. In other words, if you purchased items which were used by friends or family other than yourself, list only that amount of the total expenditure you would attribute to your own hunting and/or fishing use. Return the completed questionnaire in the enclosed envelope addressed to the Department of Economics, Colorado State University, Fort Collins, Colorado 80521, which is cooperating with us by collecting and analyzing the results of this survey for us.

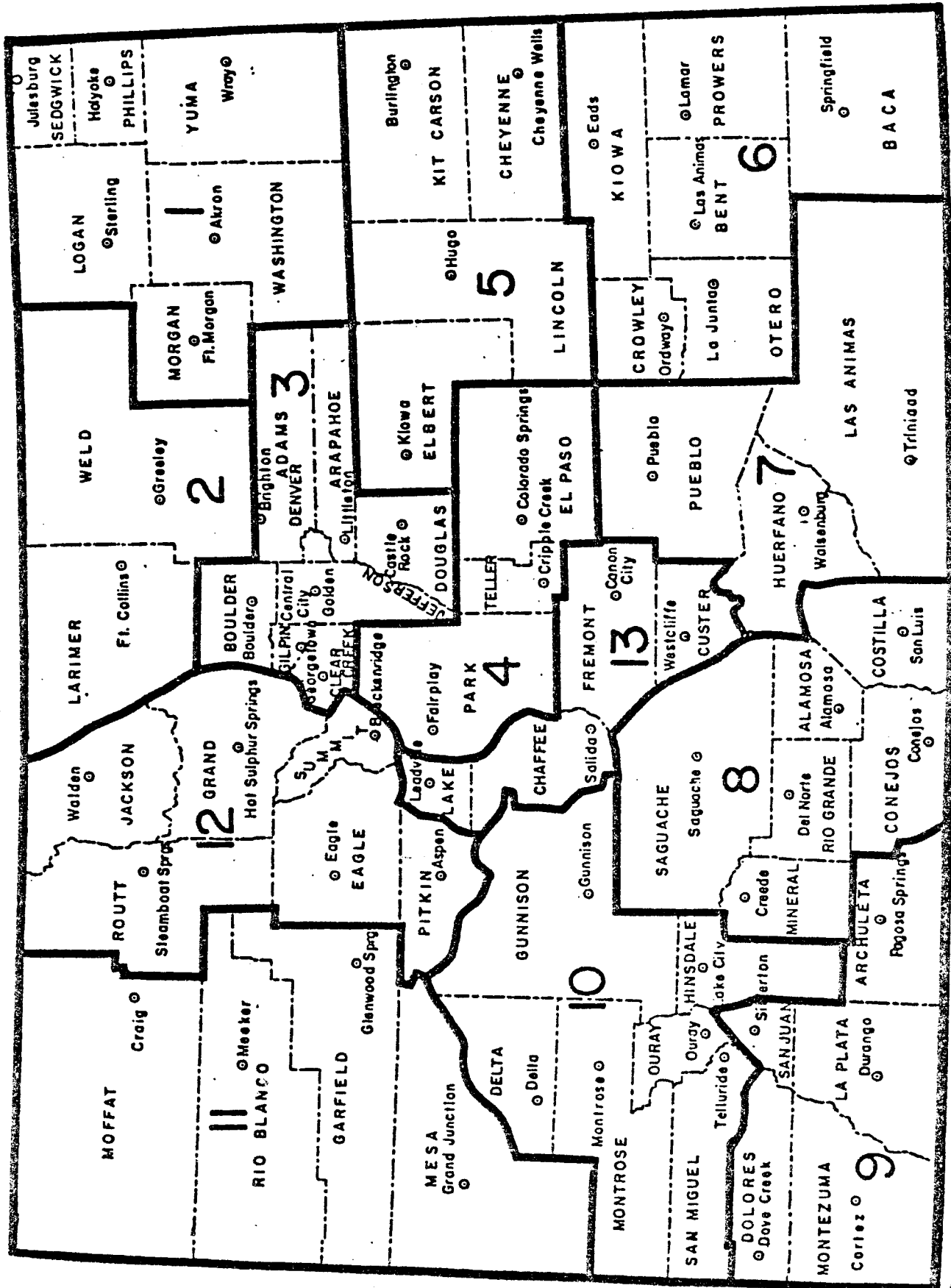
If you participated in more than one activity, you could receive more than one copy of this questionnaire. If you do, please return only one copy. Your cooperation will be very much appreciated.

Sincerely,

A handwritten signature in cursive script that reads "Jack R. Grieb".

Jack R. Grieb  
Director

# PLANNING AND MANAGEMENT DISTRICTS



1. Location of Previous Fishing and Hunting Activity:

For each of the categories in which you have participated in Colorado, fill in Columns A through C. For Column A, refer to the enclosed Colorado map.

	Name of County Most Frequently Visited	Number of Years Visited	Number of Trips in 1973
Fishing and Hunting Categories	A	B	C
Antelope			
Bighorn Sheep			
Bear			
Deer			
Elk			
Mountain Goat			
Mountain Lion			
Fishing - Lake			
Fishing - Stream			
Duck			
Geese			
<sup>a</sup> Small Game Birds			
<sup>b</sup> Small Game Mammals			
<sup>c</sup> Varmints			

<sup>a</sup>Includes: Grouse, Partridge, Pheasant, Pigeon, Dove, Quail and Turkey.

<sup>b</sup>Includes: Cottontails, Snowshoe Hares and Tree Squirrels.

<sup>c</sup>Includes: Jack Rabbit, Bobcat, Coyote, Prairie Dog, Fox and Ground Squirrels.

2. Did you pay an access or trespass fee to fish and/or hunt on private land in Colorado during 1973? Yes \_\_\_\_\_ No \_\_\_\_\_.

(a) If yes, for what activity? \_\_\_\_\_.

(b) Rate per day? \_\_\_\_\_ or Rate per season? \_\_\_\_\_.

3. Please circle the cost of each Colorado license purchased by you in 1973.

	Resident	Non-Resident		Resident	Non-Resident
Sportsman	\$ 30.00	\$135.00	Mountain Goat	\$ 40.00	None
10-day Fishing	None	5.00	Mountain Lion	25.00	\$ 50.00
Season Fishing	6.00	10.00	Turkey	5.00	10.00
Extra Rod Stamp	2.00	2.00	Archery Antelope	10.00	25.00
Lifetime Fishing	20.00	None	Archery Deer	7.50	25.00
Fishing/Small Game Comb.	7.50	None	Archery Elk	10.00	25.00
Antelope	10.00	50.00	Trapper	4.00	25.00
Bear	5.00	25.00	Small Game	4.00	15.00
Bighorn Sheep	40.00	None	Duck Stamp (Federal)	5.00	5.00
Deer	10.00	50.00	Goose Permit - \$2.00	2.00	2.00
Elk	12.50	75.00	Goose Permit - \$1.00	1.00	1.00

4.(a) Group I - Specific Use Items

Please indicate the dollar amounts of items purchased 1973 which were used ONLY for hunting and/or fishing:

	<u>Column 1</u> Total 1973 Expenses <u>IN</u> Colorado	<u>Column 2</u> Total 1973 Expenses <u>OUTSIDE</u> Colorado
1. Licenses, duck stamp, special goose permit, etc (total from question #3).....	_____	_____
2. Special clothing for hunting and/or fishing.....	_____	_____
3. Ammunition.....	_____	_____
4. Fishing rods, tackle and bait.....	_____	_____
5. Other hunting and/or fishing equipment (game bags, waders, etc.).....	_____	_____
6. Private transportation (gas, oil, tires, repairs)..	_____	_____
7. Commercial transportation (fares, <u>vehicle rentals</u> , charter).....	_____	_____
8. Lodging (motel, cabin, seasonal rental).....	_____	_____
9. Food and drink .....	_____	_____
10. Boat and equipment rentals (not including <u>vehicles</u> )	_____	_____
11. Privilege fees (access, camping, memberships, boat or state park sticker).....	_____	_____
12. Services (packers, guides, horses, etc.).....	_____	_____
13. Shipping, locker, and/or meat processing costs....	_____	_____
14. Taxidermy work.....	_____	_____
15. Miscellaneous (film, boot grease, etc.).....	_____	_____
16. Total - Column 1.....	=====	=====

4.(b) Please list the percentage of Line 16, Column One, Question 4(a), (Total 1973 Expenses in Colorado) chargeable to the following activities:

<u>ACTIVITY</u>	<u>% of 1973 COLORADO EXPENSES</u>
Antelope	_____ %
Bighorn Sheep	_____ %
Bear	_____ %
Deer	_____ %
Elk	_____ %
Mountain Goat	_____ %
Mountain Lion	_____ %
Fishing - Lakes	_____ %
Fishing - Streams	_____ %
Duck	_____ %
Geese	_____ %
<sup>a</sup> Small Game Birds	_____ %
<sup>b</sup> Small Game Mammals	_____ %
<sup>c</sup> Varmints	_____ %
TOTAL =	100 %

<sup>a</sup>Includes: Grouse, Partridge, Pheasant, Pigeon, Dove, Quail and Turkey.

<sup>b</sup>Includes: Cottonail, Snowshoe Hares and, Tree Squirrels.

<sup>c</sup>Includes: Jack Rabbit, Bobcat, Coyote, Prairie Dog, Fox and, Ground Squirrels.





5.(a) Group II - Multi-Purpose Use Items Purchased in 1973

Instructions: Because these items may be used for purposes other than hunting and/or fishing, please list the amount chargeable to hunting and/or fishing in addition to total cost. Example: You bought a \$3000 recreational vehicle in 1973 and you feel only 25% of the cost is chargeable to hunting and/or fishing because you also drive it to work. Then you would list \$3000 for item no. 2, column 1 and \$750 in the blank to the right if you bought the vehicle in Colorado or just list \$3000 in item 2, column 2 if you bought the vehicle outside Colorado.

	<u>Column 1</u> Total 1973 Expenses <u>IN</u> Colorado	Colorado Expenses Chargeable to Hunting and/or Fishing <u>ONLY</u>	<u>Column 2</u> Total 1973 Expenses <u>OUTSIDE</u> Colorado
1. Family vehicle.....	_____	_____	_____
2. Recreational vehicle (4-wheel drive, pick-up, etc., other than the above).....	_____	_____	_____
3. Cabin, land and/or water area (other than permanent residence).....	_____	_____	_____
4. Camping trailer or camper for pick-up.....	_____	_____	_____
5. Camping equipment (tent, sleeping bag, accessories)_____	_____	_____	_____
6. Boating equipment (boat, canoe, motor, accessories)_____	_____	_____	_____
7. Firearms, archery, and other multi-purpose equipment (binoculars, boots, etc.).....	_____	_____	_____
8. Dogs and their care.....	_____	_____	_____
9. Miscellaneous.....	_____	_____	_____
10. Total <u>Colorado</u> expenses for multi-purpose items chargeable to hunting and/or fishing.....	_____	_____	_____

5.(b) Please list the percentage of Line Ten, Question 5(a), (Total Colorado expenses for multi-purpose use items chargeable to hunting and/or fishing ONLY) chargeable to the following activities:

<u>ACTIVITY</u>	<u>% of 1973 COLORADO EXPENSES</u>
Antelope	_____%
Bighorn Sheep	_____%
Bear	_____%
Deer	_____%
Elk	_____%
Mountain Goat	_____%
Mountain Lion	_____%
Fishing - Lakes	_____%
Fishing - Streams	_____%
Duck	_____%
Geese	_____%
<sup>a</sup> Small Game Birds	_____%
<sup>b</sup> Small Game Mammals	_____%
<sup>c</sup> Varmints	_____%
TOTAL =	100%

<sup>a</sup>Includes: Grouse, Partridge, Pheasant, Pigeon, Dove, Quail and Turkey.

<sup>b</sup>Includes: Cottontail, Snowshoe Hares and Tree Squirrel.

<sup>c</sup>Includes: Jack Rabbit, Bobcat, Coyote, Prairie Dog, Fox and Ground Squirrels.

5.(c) For each of the activities you charged expenses to in Question 5(b), please indicate what percentage of your expenditures for that activity was spent in each of the 12 map areas. See the Colorado map on page two. (For example, if you hunted deer and if 40% of your deer hunting expenditures were spent in Denver and 60% of your deer hunting expenditures were spent in Craig, you would indicate 40% for area 2 and 60% for area 11 in the deer hunting column. Complete the table for each activity you charged expenses to in Question 5(b).

ACTIVITY	MAP AREA												TOTAL	
	1	2	3	4	5	6	7	8	9	10	11	12		
ANTELOPE														100%
BIGHORN SHEEP														100%
BEAR														100%
DEER														100%
ELK														100%
MOUNTAIN GOAT														100%
MOUNTAIN LION														100%
FISHING/LAKES														100%
FISHING/STREAM														100%
DUCK														100%
GEESE														100%
SM GAME BIRDS														100%
SM GAME MAMMALS														100%
VARMINTS														100%

Thank you for your cooperation and please return in the enclosed envelope.

APPENDIX B

DEFINITIONS

1981 DEFINITIONS

Variable Cost Items include spending for:

- Transportation (bus, taxi, etc.)
- Communication (telephone)
- Auto dealers (repair, rental, etc.)
- Gas stations (fuel)
- Eating places
- Hotel-motel
- Campgrounds
- Retail stores
- Entertainment
- Health services
- Other services
- City-county government
- State government
- Federal government
- Individual
- All other

Fixed Cost Items include spending for:

- Family vehicle
- Recreational vehicle
- Cabin
- Land
- Trailer
- Camper
- Camping equipment
- Boat or boat equipment
- Firearms or archery equipment
- Related equipment (ammunition, etc.)
- Fishing poles
- Other fishing equipment
- Horses or dogs
- Miscellaneous

## 1973 DEFINITIONS

### Variable Cost Items include:

- Licenses, duck stamp, special goose permit, etc.
- Special clothing for hunting and/or fishing
- Ammunition
- Fishing rods, tackle, and bait
- Other hunting and/or fishing equipment (game bags, waders, etc.)
- Private transportation (gas, oil, tires, and repairs)
- Commercial transportation (fares, vehicle rentals, and charters)
- Lodging (motel, cabin, and seasonal rental)
- Food and drink
- Boat and equipment rentals (not including vehicle rentals)
- Privilege fees (access, camping, memberships, boat or state park sticker)
- Services (packers, guides, horses, etc.)
- Shipping, locker, and/or meat processing costs
- Taxidermy work
- Miscellaneous (film, boot grease, etc.).

### Fixed Cost Items include:

- Recreational vehicle (four-wheel drive, pick-up, etc., other than above)
- Cabin, land and/or water area (other than permanent residence)
- Camping trailer or camper for pick-up
- Camping equipment (tent, sleeping bag, and accessories)
- Boating equipment (boat, canoe, motor, and accessories)
- Firearms, archery, and other multi-purpose equipment (binoculars, boots, etc.)
- Dogs and their care
- Miscellaneous.

### Small Game Birds include:

Grouse, partridge, pheasant, pigeon, dove, quail, and turkey.

### Small Game Mammals include:

Cottontails, snowshoe hares, and tree squirrels.

### Varmints include:

Jack rabbit, bobcat, coyote, prairie dog, fox, and ground squirrels.