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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY.....	1
1.1 Introduction.....	1
1.2 Results.....	2
1.3 Other Considerations.....	4
2.0 INTRODUCTION.....	5
2.1 The Bristol Bay Coastal Resource Area (CRSA).....	5
2.2 Historical Resource Use.....	6
2.3 Study Objectives.....	7
2.4 Study Elements.....	8
3.0 DATA ANALYSIS.....	10
3.1 Summary of Methodology.....	10
3.1.1 Variables.....	10
3.1.2 Coding.....	10
3.1.3 Data Entry.....	11
3.1.4 Running SPSS.....	11
3.1.5 Data Summary and Implications.....	11
3.2 Summary of Responses.....	12
3.2.1 Survey Population and Sample Size.....	12
3.2.2 Summary of Responses by Question.....	12
3.3 Mapped Information.....	35
3.3.1 Purpose.....	35
3.3.2 Results.....	36
3.4 Analysis.....	40
3.4.1 Projections.....	40
3.4.2 Crosstabulations.....	46
4.0 CONCLUSIONS AND RECOMMENDATIONS.....	55
4.1 Introduction.....	55
4.2 Summary of Data Analysis.....	55
4.3 Communication and Coordination.....	64
4.4 Policy Implementation and Future Planning.....	65
APPENDIX A: DIRECTORY.....	68
5.1 Methodology.....	68
5.2 Update and Maintenance.....	71
APPENDIX B: SURVEY INSTRUMENTS.....	73
6.1 Survey Development Methodology.....	73
6.2 Survey Execution.....	75
6.3 Basic Survey Form.....	76

LIST OF TABLES, MAPS, AND FIGURES

TABLES

Table 3-1	Survey Population and Sample Size by Operator Type.....	12
Table 3-2	Projected Number of 1985 Clients.....	42
Table 3-3	Projected Man-days of Fishing Effort.....	42
Table 3-4	Projected Man-months of Employment.....	45
Table 3-5	Crosstabulation of Gross Income by Years of Operation Operation: Air Taxi.....	49
Table 3-6	Crosstabulation of Gross Income by Years of Operation: Guide.....	50
Table 3-7	Crosstabulation of Gross Income by Years of Operation: Lodge.....	51
Table 3-8	Total Clients per Year vs. Recent Trend in Repeat Clients: Air Taxi.....	52
Table 3-9	Total Clients per Year vs. Recent Trend in Repeat Clients: Guide.....	53
Table 3-10	Total Clients per Year vs. Recent Trend in Repeat Clients: Lodge.....	54

FIGURES

Figure 4-1	Clients by Month of Operation.....	56
Figure 4-2	Distribution of Air Taxi Activity by Subregion.....	59
Figure 4-3	Distribution of Guide Activity by Subregion.....	60
Figure 4-4	Distribution of Lodge Activity by Subregion.....	61
Figure 4-5	Clients by Place of Residency: Air Taxi.....	62
Figure 4-6	Clients by Place of Residency: Guide.....	62
Figure 4-7	Clients by Place of Residency: Lodge.....	63

MAPS

Map 1	Distribution of Sport Fishing Effort.....	37
Map 2	Distribution of Sport Hunting Effort.....	38
Map 3	Distribution of Boat Trip Effort.....	39
Map 4	Distribution of Facilities.....	41

1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Bristol Bay region of Alaska is world renowned for its fish and wildlife resources. Two river systems, the Nushagak and Mulchatna, form two of the major drainages in upper Bristol Bay that encompass approximately 14,000 square miles of primarily State and private (ANCSA Village Corporation) lands. The Nushagak River and its tributaries contain all five species of Pacific Salmon; and a variety of freshwater fish including rainbow trout, Dolly Varden, arctic char, arctic grayling and northern pike. Big game species include moose, caribou and brown bear.

Historically, the residents of Bristol Bay have relied heavily upon fish and wildlife resources for subsistence with salmon, caribou and moose being the most abundant and widely harvested of these resources. Subsistence activities provide an essential source of food and are an important link to the cultural heritage and lifestyle for the six communities located in the Nushagak River drainage. Since the late 1800's, commercial salmon fishing has been the mainstay of the region's economy. Sockeye salmon accounts for 88% of the catch in the Bristol Bay Management Area that encompasses five, Alaska Department of Fish & Game (ADF&G) designated fishing districts, including Nushagak Bay. The harvest constitutes the world's largest sockeye salmon fishery.

The abundant fish and wildlife, combined with the region's scenic beauty, has attracted growing numbers of recreational boaters, sport fishermen and sport hunters, from all over the world in recent years. Expansion of the recreation industry has been commensurate with the increase in local, state and national recreational users to the area. Access to the river systems for recreational hunters and fishermen is provided by an increasing number of lodges and fish camps in the region. Non-guided hunting and fishing is also increasing, particularly on the lower Nushagak.

As a result, pressure on, and competition for, the fish and wildlife by commercial fishing, traditional subsistence and commercial recreation user groups is intensifying. As use increases, resource managers must be able to understand the importance of these activities and evaluate the impact of management decisions on the various fish and wildlife users, as well as on the resources themselves.

The Bristol Bay Coastal Resource Service Area (CRSA) initiated this study of commercial recreation service providers to obtain information on the characteristics of commercial recreation activities in the Nushagak-Mulchatna River drainages. Two major products were developed as part of the commercial recreation study: a current directory of air taxi, guide and lodge operators currently providing commercial recreation services in the study area, and data collected through a survey of these operators.

The directory is a means of future communication and coordination between the CRSA Board and commercial recreation service providers. Data collected increases CRSA board, and other government agency, understanding of recreation needs and issues. This will result in facilitating incorporation of recreation considerations into permit review and planning activities.

1.2 RESULTS

Some selected excerpts of the survey results are summarized below. For further information refer to Chapter 3.0 of the Bristol Bay Commercial Recreation Service Providers Study.

OPERATOR CHARACTERISTICS

Number and Type of Commercial Service Operator

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Sample TOTAL 71	24	22	25
Population TOTAL 127	42	47	38

CLIENT PROFILE

Average and Total # of Clients 1985

SAMPLE	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Average	141	35	170
Total	2822	597	4254
TOTAL 7673			
POPULATION			
Projected	3300 to	926 to	5670 to
Total	8552	2378	7262
(90% Confidence Level)			

Clients are predominantly from the Lower 48, followed by Alaskan and international clients.

INCOME

Average Estimated Gross Income (Average of point estimate)

Air Taxi	\$194,762
Guide	\$ 56,447
Lodge	\$354,792

Projected Total Study Area Income of Operator Population
(point estimate)

Air Taxi	\$ 8,810,004
Guide	\$ 2,653,009
Lodge	\$13,492,096
TOTAL	\$24,955,109

Maximum # of Employees Per Month by Category

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Guides	7	35	111
Pilots	82	2	45
Cooks	0	7	67
Maintenance	29	12	4
Management/Marketing	34	4	4

ACTIVITIES

Activity Preference

Among air taxi, guide and lodge operators, sport fishing is the most popular client activity. Rainbow trout and king salmon are the most sought after fish. Guided boating is second in popularity among guides and lodges, followed by hunting, where caribou, moose and bear are roughly of equal preference. Hunting is the second most popular activity for air taxis, followed by boating.

Activity Distribution

Fishing, hunting, and boating activities occur throughout the study area; however, activities are more concentrated in certain subareas. In general, the Mulchatna River Drainage (subareas E and F) receive the heaviest overall use. Salmon and rainbow trout fishing is most frequent in these regions, along with Portage Creek in subarea D. Hunting and boating are also concentrated along the Mulchatna River, although the Wood-Tikchik Lakes (subarea A) is also heavily used for these purposes.

RECREATION USE PERCEPTIONS

Many operators feel they have been restricted by creation of federal reserves and regulations associated with hunting and fishing on those reserves. The conveyance of land to Native corporations was also frequently mentioned as restricting commercial operations.

Crowding due to an increasing number of operators is viewed as negatively affecting the quality of recreation use in the study area. However, most operators do not see a corresponding decline in the abundance of fish and wildlife.

1.3 OTHER CONSIDERATIONS

The primary purpose of this study was to collect baseline data on commercial recreation activities occurring in the study area. While conducting the study, several observations were made and are discussed below.

The relative lack of communication between commercial recreation service providers and residents of the region has historically limited cooperation between the two groups. The study has increased communication between the Bristol Bay CRSA and commercial recreation service providers. Continued coordination is recommended.

Study data will be useful in making coastal consistency recommendations on recreation activities requiring state and federal permits. Because commercial operators are a resource user within the region, the Bristol Bay CRSA should consider the impact of other activities on existing recreation uses, when determining consistency of proposed activities.

It is in the best interests of both the Bristol Bay CRSA, the residents of the region, and commercial recreation service providers to work together to 1) resolve potential conflicts between recreation activities and other resource users and 2) work with private, state and federal land managers to plan for future recreational uses.

2.0 INTRODUCTION

2.1 THE BRISTOL BAY COASTAL RESOURCE SERVICE AREA (CRSA)

The Alaska Coastal Management Act of 1977 provides for the development of local district coastal management programs that must conform with the Standards and Guidelines set forth in the act. However, district programs are developed at the local level and reflect the local issues, resources and policies that are unique to a particular district.

The development of a district program is subject to review by the public, state and federal agencies, and must be approved by both the state and federal governments before it can be implemented. Once approved, a district program is used by permitting agencies to determine whether a proposed development is consistent with the Alaska Coastal Management Program. In general, a coastal management "consistency determination" could result in: permit approval, approval with conditions, or denial.

Municipalities with planning powers under Title 29 of the Alaska Statutes, such as the Bristol Bay Borough, can elect to become a coastal district. In areas within the Unorganized Borough (i.e., areas outside organized municipalities), the Alaska Coastal Management Program (ACMP) provides for the formation of Coastal Resource Service Areas (CRSA's) to develop the district coastal management program. The boundaries of these CRSA's are determined by the Alaska Department of Community and Regional Affairs, and sometimes include small municipalities. To organize, residents within the CRSA submit a petition to the Department of Community and Regional Affairs, and a regional election is held to elect a CRSA Board. The board and its staff are responsible for overseeing the preparation and approval of the CRSA district program.

In October of 1981, the residents of the Bristol Bay region voted to form a CRSA and elected a CRSA Board. Over time, the board has included representatives of villages and village corporations, commercial fishing interests and the City of Dillingham. Since that election, the Bristol Bay CRSA has completed a district coastal management program which received State approval from the Coastal Policy Council. The program is currently before the federal Office of Coastal Resource Management for approval as an amendment to the Alaska Coastal Management Program.

Once a district coastal management program has been approved, the CRSA board and its staff have continuing responsibilities in two major areas: 1) permit review and consistency recommendations, and 2) continued program implementation and planning. The ACMP also directs coastal districts to consider placing specific areas in a special designation referred to as an Area Meriting Special Attention (AMSA). An area may be considered for the AMSA designation if it is sensitive to change or alteration and possesses unique physical, cultural or biological characteristics.

The Nushagak/Mulchatna River drainage was one of two geographical areas identified in the Bristol Bay Coastal Management Program as meeting the criteria for placing a specific area under this special designation. This area was identified as a "suggested" AMSA because of it's diverse and abundant fish and wildlife, the growing conflicts between commercial recreation users and

traditional users for these resources, and the need to gather baseline information necessary for future planning efforts. The impetus for the Nushagak and Mulchatna River Drainage Commercial Recreation Service Provider Study is to provide the CRSA board with data needed to implement both of these responsibilities. Improved knowledge of the characteristics of commercial recreation use and activities in the two river drainages will assist with permit review and future planning.

2.2 HISTORICAL RESOURCE USE

The Bristol Bay region of Alaska is world renowned for its fish and wildlife resources. Two river systems, the Nushagak and Mulchatna, form two of the major drainages in upper Bristol Bay that encompass approximately 14,000 square miles of primarily State and private (ANCSA Village Corporation) lands. The Nushagak River and its tributaries contain all five species of Pacific Salmon; and a variety of freshwater fish including rainbow trout, Dolly Varden, arctic char, arctic grayling and northern pike. Big game species include moose, caribou and brown bear.

Historically, the residents of Bristol Bay have relied heavily upon fish and wildlife resources for subsistence with salmon, caribou and moose being the most abundant and widely harvested of these resources. Subsistence activities provide an essential source of food and are an important link to the cultural heritage and lifestyle for the six communities located in the Nushagak River drainage. The area is also utilized extensively for subsistence by many other villages in upper Bristol Bay. Subsistence continues to be an important and vital economic activity as well as the preferred lifestyle and source of food for the majority of the region's residents.

Since the late 1800's, commercial salmon fishing has been the mainstay of the region's economy. Sockeye salmon accounts for 88% of the catch in the Bristol Bay Management Area that encompasses five, Alaska Department of Fish & Game (ADF&G) designated fishing districts, including Nushagak Bay. The harvest constitutes the world's largest sockeye salmon fishery. Between 1978 and 1983, the Bristol Bay commercial salmon fishery had an average ex-vessel value of 105 million dollars. Additionally, the Nushagak River system supports the region's largest runs of king, chum, pink and silver salmon which are also of economic importance to the commercial salmon fishery.

The abundant fish and wildlife, combined with the region's scenic beauty, has attracted growing numbers of recreational boaters, sport fishermen, and sport hunters, from all over the world in recent years. The many and diverse recreational values of the region have led to the establishment of the Wood-Tikchik State Park, and recommendations for State Recreation River status for other portions of the area. Originally studied for inclusion in the National Wild and Scenic River System, the headwaters of the Mulchatna River lie within Lake Clark National Park & Preserve.

Expansion of the recreation industry has been commensurate with the increase in local, state and national recreational users to the area. Access to the river systems for recreational hunters and fishermen is provided by an increasing number of lodges and fish camps in the region. Non-guided hunting and fishing is also increasing, particularly on the lower Nushagak. The relative proximity of the Nushagak and Mulchatna drainages to the more urban areas of the state,

primarily Anchorage, also has facilitated and encouraged increased use of the area's resources by commercial and public recreational users alike. Continued growth by the recreation industry is expected to exceed the conservative figure of \$25-30 million dollars estimated to be generated annually by this sector of the economy.

As a result, pressure on, and competition for, the fish and wildlife by commercial fishing, traditional subsistence and commercial recreation user groups is intensifying. As use increases, resource managers must be able to understand the importance of these activities and evaluate the impact of management decisions on the various fish and wildlife users, as well as on the resources themselves.

2.3 STUDY OBJECTIVES

The principal objectives of the Nushagak-Mulchatna River Drainage Commercial Recreation study were to:

- 1) Provide a complete and easily updated directory of recreation service providers in the study area;

An accurate directory will allow the CRSA Board to contact and coordinate with commercial recreation service providers operating in the study area. Such coordination will enhance both permit review and the process of obtaining information for future planning activities.

- 2) Gather comprehensive information on the characteristics of commercial recreation use in the Nushagak-Mulchatna River drainages through a survey of commercial recreation service providers;

Important information for coastal management planning includes the number of commercial service providers, types of services and activities, identification of site-specific areas where concentrated recreation efforts occur, peak time periods for recreational uses and activities, information on user groups and information on service provider costs, revenues and contribution to the economy.

- 3) Analyze the data obtained; and

Information on the characteristics of commercial recreation use must be evaluated in the context of other uses of coastal lands and waters, and how recreation effects, or can be affected by, those other uses. The analysis focuses on key characteristics of commercial recreation use that allow comparison with other uses and activities.

- 4) Present the analyzed data in a form that will assist the Bristol Bay CRSA in recreation planning and the application of coastal management policies during the coastal consistency determination process.

As the Bristol Bay CRSA pursues its responsibilities in permit review and coastal planning, the recreation data from this study will assist the board in making decisions.

2.4 STUDY ELEMENTS

The study of commercial recreation service providers in the Nushagak-Mulchatna drainages has three major study elements: the service provider directory, survey design and execution, and data analysis.

DIRECTORY

The first step of the study was preparation of a directory of commercial recreation service providers operating in the Nushagak and Mulchatna river drainages. An initial directory was compiled from several sources, and was then cross-checked through phone calls to individual listings. The directory was used for both the face-to-face and mailout surveys. As phone contacts were made and mail responses received, the directory was further modified to exclude listings not operating in the study area. The initial listings included a total of 185 air taxi, guide and lodge operators. By deleting listings who did not operate in the study area and mail surveys returned as non-deliverable, the final directory contains 127 entries.

Please refer to Appendix A of this report for more detailed information on the directory.

SURVEY

The second step in the study involved the design of survey instruments and the execution of surveys of air taxi, guide and lodge operators. The Bristol Bay CRSA prepared a list of commercial recreation service provider characteristics that would be useful when evaluating permits for coastal consistency and in future planning activities. These characteristics were then incorporated into a draft master survey that would be modified later for differences between air taxi, guide and lodge operators.

The draft survey was reviewed by CRSA staff and representatives of the Alaska Departments of Fish and Game and Natural Resources. The survey was modified by incorporating review comments, then it was pre-tested in face-to-face interviews with two, air taxi, guide and lodge operators from southcentral Alaska who did not operate in the study area. Final revisions were made to develop three final survey forms: one each for air taxi, guide and lodge operators.

Surveys of commercial recreation service providers were conducted through face-to-face interviews with available operators in the Anchorage, Dillingham, King Salmon and Iliamna areas. The rest of the listings in the directory were sent survey forms in the mail, accompanied by instructions on how to complete the surveys. Each survey was logged in as it was completed or returned. Follow-up phone calls were used for listings when mail surveys were not returned.

For more information on the development and execution of the surveys, please refer to Appendix B of this report.

DATA ANALYSIS

The last element of the study consisted of compilation and analysis of the survey data. This included coding the survey data, entering coded data into the Statistic Package for Social Sciences (SPSS PC+) program on micro-computer, running the program and printing out data, and presenting analyzed data. The following chapter presents the results of the data analysis. Additional information on the statistical model can be found in Appendix C of this report.

3.0 DATA ANALYSIS

3.1 SUMMARY OF METHODOLOGY

This section of the report summarizes the methodology used to analyze the responses from completed surveys of Air Taxi, Guide and Lodge operators providing commercial recreation services in the Nushagak-Mulchatna River drainage study area. Directory and Survey methodologies are discussed in the appendices to this report, as is the detailed statistical model methodology. Data analysis consisted of 6 steps:

- 1) Developing variables for the data analysis;
- 2) Coding the individual, completed survey forms;
- 3) Entering the code sheets into the Statistical Package for Social Sciences (SPSS) computer program;
- 4) Running the analysis of the entered data for each of the three categories of service providers;
- 5) Summarizing data run output and its implications; and
- 6) Summarizing mapped data.

3.1.1 VARIABLES

At the initial step of the data analysis, each specific item of data on the surveys was given a specific variable name. For many of the questions, the responses were merely a single variable, however, the matrix-type questions proved to be more complex. Each individual cell of the matrix had to be a separate identifiable variable to allow aggregations and calculations of the responses to the question. This meant that question #6 for example, did not have a single variable associated with the response, it required #15. Some of the larger matrix-style questions required as many as 84 separate variables.

3.1.2 CODING

A code sheet was developed to take the data from the individual survey forms and put it in a format that could be entered into a computer file for data analyses. Ideally, surveys can be designed to allow coding directly from the actual document, but that procedure was not possible in this case. The study team found that the answers were sufficiently complex to require careful scrutiny of each.

Development of a code sheet had to reflect the organization of the survey questionnaire and the requirements of the SPSS program to read data. All survey response data was coded into numerical form including "yes-no" and "don't know" answers. A code sheet was prepared for each of the completed survey forms by a team of three study team members working together to ensure consistent coding. Each completed questionnaire took between one half to a full hour to code. Judgement calls were required when questionable data appeared on individual survey forms so familiarity with the survey was essential. After completion, code sheets were reviewed to look for obvious errors.

3.1.3 DATA ENTRY

Completed code sheets were entered into SPSS data files by manual keypunch. The computer files showing each of the code surveys were printed and "proofed" for errors against the coding forms. This additional step in the data entry process allowed correction of several errors that would have resulted in less accurate analyses of the survey results.

3.1.4 RUNNING SPSS

The actual data analyses were completed using a statistical software package called Statistical Package for Social Sciences or SPSS PC+. The program was run on a Compaq Deskpro personal computer equipped with a 20 megabyte hard disk, 640 K Ram memory and an 8087 math coprocessor. The sheer volume of the data files entered created several difficulties in running the program, due to the inherent system maximum size limitations (e.g., the number of discrete variables is limited to 200 in SPSS PC+ and this required approximately 1200). Some of these difficulties are detailed in Appendix C. Technical representatives at SPSS, Inc. were consulted to solve these initial problems.

The results of the statistical analysis were provided in hard copy printouts of data runs for individual or groups of questions.

3.1.5 DATA SUMMARY AND IMPLICATIONS

The rest of this chapter addresses the summary of both the analytical data output and mapped information and their implications. It should be stressed that the analysis of the volume of data input is by no means exhaustive and could be further refined through additional analysis.

Section 3.2 discusses the summary of responses to the questionnaire; Section 3.3 addresses mapped information.

TABLE 3-1
SURVEY POPULATION AND SAMPLE SIZE BY OPERATOR TYPE

POPULATION

Total Number in Directory	185
Did Not Operate in Study Area	48
Returned Non-deliverable	10
REVISED POPULATION	127

SAMPLE

Completed Face-to-Face	52
Completed Mail Surveys	20
TOTAL RESPONDENTS (Sample Size)	72
Total Non-respondents	55

PROPORTION OF SAMPLE TO POPULATION 57%

BREAKDOWN BY TYPE OF RESPONDENT

	<u>Population</u>	<u>Sample</u>	<u>% of Population</u>
Air Taxi	42	24	57%
Guide	47	22	47%
Lodge	38	25	66%

3.2 SUMMARY OF RESPONSES

3.2.1 SURVEY POPULATION AND SAMPLE SIZE

Appendix A describes the preparation of the directory of commercial recreation service providers potentially active in the study area. This directory, as modified by phone contact and response to mail-out surveys, represents the population of commercial recreation service providers to be surveyed. The number of face-to-face and mail-out responses represents the sample size. The breakdown of the survey population and sample size by Air Taxi, Guide and Lodge operators is described in Table 3-1 (above).

3.2.2 SUMMARY OF RESPONSES BY QUESTION

The summary of responses that follows are represented by survey question; as described in Appendix B, questions asked of guide and lodge operators are identical except for a slight variation in Question 25. Air taxi questions vary slightly from those asked of guide and lodge operators; some questions were deleted and others were modified. Notes in parentheses following each question indicate which questionnaire it appeared on. A question that was identical for all three questionnaires would be indicated as (Air Taxi, Guide and Lodge).

For each question on the survey form, data was printed out by Air Taxi, Guide and lodge operator response. The SPSS run printout for each of these responses included sample size (# of response to the question), a frequency distribution of the responses, the mean value of the sample and the range of response value. Most of the data in the summary consists primarily of frequency distributions unless otherwise noted. Other common data summaries include mean values of responses and percent of populations. With the exception of matrix questions, the number of "no response" and sample (total) statistics are presented for each question.

OWNERSHIP AND HISTORY OF OPERATION

1. Which of the following best describes the type of operation you have?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Lodge	0	0	11
Air Taxi	15	0	0
Guide Service/Outfitters	0	18	0
Combination of 1 and 2	1	0	2
Combination of 2 and 3	5	0	0
Combination of 1 and 3	0	1	8
Combination of 1, 2 and 3	1	1	4
No Response	0	0	0
TOTAL	22	20	25

2. Is the business the sole or part-time occupation of the operator?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Sole	16	6	17
Part-time	6	14	8
No Response	0	0	0
TOTAL	22	20	25

- 2a. If the business is a part-time occupation, what is the operators other occupation?

Examples of responses

- | | |
|-----------------------|--------------------------|
| 1) commercial fishing | 6) construction |
| 2) air taxi | 7) investment consultant |
| 3) taxidermist | 8) doctor |
| 4) professor | 9) mining |
| 5) printer | 10) teacher |

3. How many years has this operation been in business while under the current owner?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
1-2 years	5	2	2
3-5 years	5	5	4
6-10 years	3	5	9
11-15 years	3	5	5
16-20 years	1	2	1
More than 20 years	5	1	4
No Response	0	0	0
TOTAL	22	20	25

4. How many years has this operation been in business while under prior owners?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
None	15	20	18
1-2 years	1	0	0
3-5 years	0	0	1
6-10 years	1	0	2
11-15 years	1	0	1
16-20 years	1	0	0
More than 20 years	2	0	2
No Response	1	0	0
TOTAL	22	20	24

5. Please circle the months of the year your business was in operation in the area identified on the map as the study area (including preseason start-up and post season clean-up):
(Air Taxi, Guide and Lodge)

OF OPERATORS DURING EACH MONTH OF 1985

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
January	5	1	0
February	6	2	1
March	6	3	1
April	7	2	1
May	10	5	14
June	18	11	25
July	19	15	25
August	20	15	24
September	20	12	24
October	12	7	13
November	5	1	0
December	6	1	1
No Response	0	1	0
TOTAL	22	20	25

ACCESS TO OPERATION

6. What is the main means of access to your business operations? (Base camp is your primary facility in the study area, satellite camps include cabins and wall tent sites.)
(Air Taxi, Guide and Lodge)

AIR TAXI

	A. Plane	B. Boat	C. Road
Base Camp	4	0	0
Satellite Camps	5	1	0
Hunting Areas	13	2	1
Fishing Areas	15	3	0
Other	3	0	0

No Response 1
TOTAL 22

GUIDE

	A. Plane	B. Boat	C. Road
Base Camp	11	2	1
Satellite Camps	11	7	1
Hunting Areas	8	2	0
Fishing Areas	9	7	1
Other	4	3	0

No Response 0
TOTAL 20

LODGE

	A. Plane	B. Boat	C. Road
Base Camp	17	4	1
Satellite Camps	15	6	0
Hunting Areas	13	2	0
Fishing Areas	22	11	0
Other	0	1	0

No Response 0
TOTAL 25

MARKETING AND ADVERTISING

7. Which of the following media sources does your business use for advertising?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Magazines	11	13	19
Newspaper	13	4	5
Radio	7	1	3
Television	3	1	4
Brochures	11	14	20
Other	10	7	20
None	0	0	0
No Response	0	0	0
TOTAL	22	20	25

Other responses included the following:
word of mouth, travel agent, trade shows, direct mailouts

CLIENT PROFILE

8. What was the number of clients your business had during each month of 1985 (estimate if necessary)?
(Air Taxi, Guide and Lodge)

TOTAL OF ALL RESPONDENTS

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
Air	35	44	38	36	64	380	559	695	752	166	28	36
Guide	0	0	4	0	10	202	136	86	93	24	18	24
Lodge	0	0	0	0	119	813	1102	1064	1032	124	0	0

	<u>Annual Totals</u>	<u>Average 1985</u>	<u>Respondents</u>
Air	2822	141	20
Guide	597	35	17
Lodge	4254	170	25

9. Please estimate the average number of clients you had during the following years (mark N/A if you did not operate in a specific year).
(Air Taxi, Guide and Lodge)

AVERAGE OF ALL RESPONDENTS (# OF RESPONDENTS)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
1984	85.8 (20)	27.0 (15)	129.5 (22)
1983	86.1 (16)	26.8 (13)	118.3 (20)
1982	88.2 (13)	26.4 (13)	110.0 (19)
1981	37.0 (10)	28.5 (12)	112.8 (16)
1980	85.7 (10)	29.5 (11)	109.8 (17)

10. Please estimate the percentage of your clientele during the 1980-1984 seasons which fell within the following residency categories:
(Air Taxi, Guide and Lodge)

MEAN % OF ALL RESPONDENTS*

AIR TAXI

	1985	1984	1983	1982	1981
Bristol Bay Resident	14.1	9.4	8.0	9.2	11.5
Alaskan Resident outside Bristol Bay Region	41.3	46.5	47.1	42.8	42.6
Out of State, U.S. Resident	39.6	38.2	32.8	34.0	32.7
International	7.1	8.2	5.5	6.3	3.2

GUIDE

	1985	1984	1983	1982	1981
Bristol Bay Resident	6.0	3.9	5.3	4.1	4.3
Alaskan Resident outside Bristol Bay Region	9.8	25.8	16.9	15.1	3.8
Out of State, U.S. Resident	67.2	57.8	58.6	43.9	53.5
International	12.2	6.9	8.0	9.0	6.0

LODGE

	1985	1984	1983	1982	1981
Bristol Bay Resident	0.5	0.6	0.6	0.6	0.6
Alaskan Resident outside Bristol Bay Region	13.7	13.6	11.8	13.2	13.3
Out of State, U.S. Reside	79.8	80.1	81.5	75.2	69.6
International	5.7	5.7	6.0	11.0	11.1

*In answering this question, many respondents repeated 1985 levels across the five year period

11. Please estimate what percentage of your clientele during 1985 fell within the following age categories:
(Air Taxi, Guide and Lodge)

MEAN % OF ALL RESPONDENTS

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
0-17 _____ %	5.7	2.6	1.4
18-24 _____ %	6.9	2.5	4.2
25-34 _____ %	35.3	23.6	12.3
35-49 _____ %	38.2	43.1	39.1
50-64 _____ %	13.1	19.8	36.7
65+ _____ %	0.7	8.4	5.8
No Response	4	2	0
TOTAL	22	20	25

12. During 1985, what percentage of your clientele were repeat clients?
(Air Taxi, Guide and Lodge)

MEAN % OF ALL RESPONDENTS

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
_____ %	27.0	34.05	50.9
No Response	1	2	0
TOTAL	22	20	25

13. Over the past several years, has the proportion of repeat clients to your business:
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Increased	17	12	16
Decreased	0	0	8
Stayed the Same	4	6	1
No Response	1	2	0
TOTAL	22	20	25

14. What is the primary activity sought by your clientele? Please rank (i.e., 1st, 2nd, etc.) the preference of your clientele for the following activities. Leave blank if your clients did not participate in an activity.
(Guide and Lodge)

Total represents a weighted index of the popularity of each activity. The higher the total, the more popular the activity.

	<u>Guides</u>		<u>Lodges</u>	
	Total	# of 1st's	Total	# of 1st's
<u>FISHING</u>				
Rainbow Trout	123	2	240	11
Arctic Char	74	0	139	0
King Salmon	105	4	223	10
Silver Salmon	107	0	190	1
Grayling	58	0	123	0
Northern Pike	31	0	75	0

<u>OTHER ACTIVITIES</u>	<u>Guides</u>		<u>Lodges</u>	
Moose Hunting	42	1	22	0
Brown Bear Hunting	47	2	14	0
Caribou Hunting	42	1	29	0
Guided Boat/Raft Trip	112	8	30	0
Unguided Boat/Raft Trip	20	0	26	0
No Response	0	2	3	0

(Air Taxi)	Total	# of 1st's
Fishing	46	10
Hunting	39	7
Boating/Raft Trip	22	1
No Response	0	4

15. What is your current (1985) rate per client for a typical package (indicate unit of time, i.e., seven day package)?
(Guide and Lodge)

MEAN CLIENT CHARGE OF ALL RESPONDENTS*

	<u>Guides</u>	<u>Lodges</u>
Cost per Day	\$369.95	\$387.90
No Response	1	0

What is your current 1985 range of rates per hour for your aircraft charters? (Indicate unit of time, e.g., \$275 per hour)
(Air Taxi)

MEAN CLIENT CHARGE OF ALL RESPONDENTS*

Cost per Hour	\$237.50
No Response	0

*For guides and lodges, the most popular package length was 7 days, and many charge by 7 day packages

16. Does the rate include roundtrip transportation from Anchorage?
(Guide and Lodge)

	<u>Guides</u>	<u>Lodges</u>
Yes	6	4
No	14	21
No Response	0	0
TOTAL	20	25

Does your business offer a transportation package to the study area from Anchorage?
(Air Taxi)

Yes	8
No	14
No Response	0
TOTAL	22

17. If not included in a standard package, what is the average cost per passenger for round trip transportation to your operation from Anchorage?
(Guide and Lodge)

MEAN COST OF ALL RESPONDENTS

	<u>Guides</u>	<u>Lodges</u>
\$ _____	\$270	\$235
No Response	8	6

If yes, what is the average cost per passenger for round trip transportation to your operation from Anchorage?
(Air Taxi)

MEAN COST OF ALL RESPONDENTS

\$ _____	\$337
No Response	11

18. What other services, if any, does your lodge offer and how much do they cost (include units, i.e., per day or per hour, etc.)?
(Lodge)

Few respondents answered this question. Examples of other services are shown below:

SERVICE	FEE
Boat	\$ 50/day
Tackle	\$ 60/week \$5/hour
Tents	\$ 50/trip
Rafts	\$ 100/trip
Guided fishing	\$ 150/person/day

INCOME, EXPENSES AND OPERATIONAL COSTS

19. What is the range of your estimated gross income from your business operation for 1985?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
\$0-5,000	1	0	0
\$5,100-20,000	4	6	0
\$21,000-30,000	0	2	1
\$31,000-50,000	0	4	1
\$51,000-75,000	3	1	2
\$76,000-100,000	0	2	2
\$101,000-200,000	4	4	4
\$201,000-300,000	3	0	2
\$301,000-400,000	0	0	3
\$401,000-500,000	0	0	4
\$501,000-1,000,000	4	0	5
Over \$1,001,000	2	0	0
No Response	0	1	1
TOTAL	22	20	24

20. Over the past several years, has the gross income from your business tended to:
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Increase	18	13	20
Decrease	1	1	1
Stay the Same	0	5	2
No Response	3	1	1
TOTAL	22	20	25

21. What is the range of your estimated total business expenses for the 1985 season?
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
\$0-5,000	3	2	0
\$5,100-20,000	1	8	1
\$21,000-30,000	3	1	1
\$31,000-50,000	1	1	1
\$51,000-75,000	0	3	2
\$76,000-100,000	0	2	4
\$101,000-200,000	7	1	0
\$201,000-300,000	0	0	6
\$301,000-400,000	1	0	3
\$401,000-500,000	1	0	4
\$501,000-1,000,000	2	0	3
Over \$1,001,000	1	0	0
No Response	3	2	0
TOTAL	22	20	25

22. Over the past several years, have your business expenses tended to:
(Air Taxi, Guide and Lodge)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Increase	18	18	21
Decrease	1	1	1
Stay the Same	2	0	2
No Response	1	1	1
TOTAL	22	20	25

23. Please estimate what percentage of your gross business income during 1985 can be attributed to activities and operations in the study area?
(Air Taxi, Guide and Lodge)

MEAN % OF RESPONDENTS

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
<u> </u> %	23.6%	24.5%	50.8%
No Response	1	0	2
TOTAL	22	20	25

24. Please estimate what percentage of your gross income from the 1985 season was spent in the study area?
(Air Taxi, Guide and Lodge)

MEAN % OF RESPONDENTS*

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
<u> </u> %	10.8%	19.9%	19.1%
No Response	1	0	2
TOTAL	22	20	25

*It is important to note that the availability of goods and services in the study area is limited to Dillingham and some of the villages.

PERSONNEL

25. Do you contract out for your guide service?
(Lodge)

Do you sub-contract out for your guide service?
(Guide)

	<u>Guides</u>	<u>Lodges</u>
Yes	12	9
No	8	16
No Response	0	0
TOTAL	20	25

26. What is the average guide to client ratio?
(Guide and Lodge)

<u>Ratio</u>	<u>Guides</u>	<u>Lodges</u>
1:1	5	1
1:2	6	10
1:3	4	9
1:4	2	4
1:5	1	0
1:6	1	0
1:7	1	0
No Response	0	1
TOTAL	20	25

27. For the following chart please indicate how many people you employed for each of the listed positions in the months designated:
(Air Taxi #25, Guide #27 and Lodge #27)

TOTAL # OF PEOPLE EMPLOYED FOR ALL RESPONDENTS

- | | |
|-----------|-------------------------|
| 1. Guides | 4. Maintenance |
| 2. Pilots | 5. Management/Marketing |
| 3. Cooks | |

AIR TAXI

#	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.	0	0	0	3	5	7	7	7	7	7	0	0
2.	45	45	45	58	70	81	82	78	72	63	45	45
3.	0	0	0	0	0	0	0	0	0	0	0	0
4.	17	17	17	21	26	29	29	29	27	25	17	19
5.	29	29	29	30	32	34	34	34	34	32	29	29

GUIDE

#	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.	1	2	2	4	15	31	35	24	26	17	1	1
2.	0	1	1	2	3	2	2	2	3	3	0	0
3.	0	0	0	2	3	6	7	5	6	3	0	0
4.	0	0	0	1	1	12	2	2	4	4	0	0
5.	1	1	1	1	1	4	4	3	2	1	1	1

LODGE

#	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.	0	0	0	44	111	103	106	107	32	0	0	0
2.	3	3	6	8	21	45	44	43	39	18	3	3
3.	2	2	2	3	20	67	65	65	64	25	2	2
4.	0	0	0	0	1	4	4	4	4	2	0	0
5.	3	3	3	3	3	3	3	3	3	3	3	3

No Response

Air Taxi 2 Guide 2 Lodge 1

28. What is the average monthly salary for each of the following positions in your business operation?
(Air Taxi #26, Guide #28 and Lodge #28)

MEAN INCOME OF ALL RESPONDENTS (# OF RESPONDENTS)*

	Air taxis	Guides	Lodges
1. Guides \$/month	\$3500 (2)	\$1945 (11)	\$1358 (19)
2. Pilots \$/month	\$2970 (15)	\$3667 (3)	\$3000 (19)
3. Cooks \$/month	N/A	\$1820 (5)	\$1709 (22)
4. Maintenance \$/month (Mechanics)	\$2905 (10)	\$ 917 (3)	\$1194 (16)
5. Management/ Marketing \$/month	\$1833 (9)	\$2750 (2)	\$2250 (13)
6. Other \$/month	N/A	N/A	\$ 837 (4)
9. No Response	0	0	0

29. What is the total number of employees you hired from the study area during the 1985 season?
(Air Taxi #27, Guide #29 and Lodge #29)

TOTAL # OF PEOPLE EMPLOYED FOR ALL RESPONDENTS*

AIR TAXI

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
43	43	43	43	51	51	51	51	43	43	42	42

GUIDE

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
0	0	0	0	0	2	3	3	3	0	0	0

LODGE

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
2	2	2	2	16	27	31	30	27	10	2	2

No Response

Air Taxi 2

Guide 0

Lodge 1

*Most of the local employment can be attributed to Dillingham-based air taxis and guides and lodges based in the region. Many operators hire local residents in the region in which they operate.

EQUIPMENT

30. For the following section please indicate the number of each type of boat you use for your operation:
(Air Taxi #28, Guide #30 and Lodge #30)

	<u>Air taxis</u>	<u>Guides</u>	<u>Lodges</u>
Skiff	3	19	89
Kayak	0	24	1
Canoe	3	6	8
Jet Boat	0	3	22
Raft	48	65	42
No Response	2	0	0
TOTAL	22	20	25

31. In the following chart please indicate the number of each type of plane you operate and the total capacity (i.e., number of seats not including the pilot):
(Air Taxi #29, Guide #31 and Lodge #31)

AIR TAXI

Type of Plane	Number	Carrying Capacity (all planes)
1. Fixed Wing (wheels)	82	357
2. Fixed Wing (floats/amphibious)	39	322
3. Helicopter	0	0

GUIDE

Type of Plane	Number	Carrying Capacity (all planes)
1. Fixed Wing (wheels)	6	14
2. Fixed Wing (floats/amphibious)	10	35
3. Helicopter	0	0

LODGE

Type of Plane	Number	Carrying Capacity (all planes)
1. Fixed Wing (wheels)	8	28
2. Fixed Wing (floats/amphibious)	52	298
3. Helicopter	0	0

No Response Air Taxi 0 Guide 0 Lodge 0

32. Please indicate how many of the following vehicles you use in your operation:
(Air Taxi #30, Guide #32 and Lodge #32)

		<u>Air taxis*</u>	<u>Guides</u>	<u>Lodges</u>
All Terrain Vehicles	# _____	0	4	5
Snow Machines	# _____	0	6	14
Automobile/Truck	# _____	0	4	13
Other	# _____	0	0	0
No Response		0	0	0
TOTAL		22	20	25

*Though Air taxis indicated no vehicles in this question, many reported vehicles in Question 33 below.

33. For the following chart please indicate where your equipment is headquartered. If you have equipment in one category at two locations, i.e., at both the satellite camp and main headquarters, please indicate the number of each equipment type you have in each location. (Base camp is your primary facility in the Bristol Bay Region, satellite camps include cabins and wall tent sites; main headquarters refers to headquarters outside the study area).

(Air Taxi #31, Guide #33 and Lodge #33)

AIR TAXI

LOCATION	BOATS	PLANES	VEHICLES
1. Base Camp	0	0	0
2. Satellite Camp	14	6	0
3. Main Headquarters	16	71	18

GUIDE

LOCATION	BOATS	PLANES	VEHICLES
1. Base Camp	46	20	13
2. Satellite Camp	57	4	2
3. Main Headquarters	66	30	21

LODGE

LOCATION	BOATS	PLANES	VEHICLES
1. Base Camp	36	2	7
2. Satellite Camp	0	1	0
3. Main Headquarters	54	7	3

PERCEPTIONS

34. Have the areas you use for your business changed since 1981 for any of the following reasons?

(Air Taxi #32, Guide #34 and Lodge #34)

1. Restrictions on access due to expansion or creation of National Parks or National Wildlife Refuges

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
12	55	8	40	12	48

2. Restrictions on access due to conveyances of land to Native Corporation Ownership

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
11	50	10	50	18	75

3. Restrictions on hunting and fishing in National Parks

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
10	45	2	10	10	40

4. Other Restrictions

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
1	5	5	25	5	20

5. No change in areas used

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
5	23	6	30	5	20

No Response

Air Taxi 0

Guide 0

Lodge 0

35. Have the areas you use for your business changed since 1981 for any of the following reasons?

(Air Taxi #33, Guide #35 and Lodge #35)

1. Decline in quality of experience due to crowding

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
9	41	11	55	20	80

2. Decline in abundance of fish

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
5	23	1	5	9	36

3. Decline in abundance of wildlife

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
3	14	2	10	4	16

No response

Air Taxi 2

Guide 0

Lodge 0

36. If the areas you use for your business have changed due to crowding, what is the source of crowding:

(Air Taxi #34, Guide #36 and Lodge #36)

1. Other lodges

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
7	32	6	30	16	64

2. Other outfitters

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
7	32	16	80	16	64

3. Individual parties from outside the region

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
4	18	8	40	13	52

4. Increased use by local residents

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
4	18	4	20	8	32

5. Other

<u>Air Taxi</u>	<u>%</u>	<u>Guide</u>	<u>%</u>	<u>Lodge</u>	<u>%</u>
2	9	3	15	5	20

No response

Air Taxi 4

Guide 0

Lodge 0

PRIMARY RESOURCE AND EQUIPMENT USAGE

The following questions refer to distribution of facilities and activities within the study area. The study area was divided into six sections, A through F, as shown in Maps 1-4.

1. Please indicate the number and type of facility that you have located in each section of the study area as of 1985.
(Air Taxi, Guide and Lodge)

AIR TAXI

FACILITY TYPE	A	B	C	D	E	F	OUTSIDE REGION
1. Base Camp	0	0	0	1	0	0	4
2. Wall tents/Temporary Camps	2	1	2	2	10	9	1
3. Cabins	0	0	0	0	0	0	2
4. Storage Sheds	0	0	0	1	0	0	3
5. Caches	0	0	0	1	3	3	1
6. Main Headquarters	0	0	0	4	0	0	9
7. Riverbank Dock Areas	0	0	0	0	2	2	1
8. Riverbank Ramps	0	0	0	0	0	0	2

No Response 1

GUIDE

FACILITY TYPE	A	B	C	D	E	F	OUTSIDE REGION
1. Base Camp	1	1	0	4	1	1	1
2. Wall Tents/Temporary Camps	8	6	6	4	17	8	0
3. Cabins	1	0	0	1	1	0	0
4. Storage Sheds	0	0	0	2	0	0	1
5. Caches	0	0	1	0	1	0	1
6. Main Headquarters	0	0	0	1	0	0	6
7. Riverbank Dock Areas	0	0	0	0	1	1	0
8. Riverbank Ramps	0	0	0	0	0	0	0

No Response 2

LODGE

FACILITY TYPE	A	B	C	D	E	F	OUTSIDE REGION
1. Base Camp	0	3	1	2	0	1	5
2. Wall Tents/Temporary Camps	3	3	8	12	13	9	5
3. Cabins	0	0	0	1	1	4	2
4. Storage Sheds	1	0	0	1	0	2	2
5. Caches	0	0	0	2	2	0	1
6. Main Headquarters	1	1	0	1	0	1	15
7. Riverbank Dock Areas	1	2	1	1	2	0	3
8. Riverbank Ramps	0	1	0	0	1	0	0

No Response 0

2. For the following facilities, what is the total client capacity for each building type as of 1985. Please specify the client capacity for each section where a facility type is located.
(Air Taxi, Guide and Lodge)

AIR TAXI

FACILITY TYPE	A	B	C	D	E	F	OUTSIDE REGION
1. Base Camp	0	0	0	0	0	0	16
2. Wall Tents/Temporary Camps	6	2	0	0	37	41	30
3. Cabins	0	0	0	0	0	0	0
4. Main Headquarters	0	0	0	0	0	0	30

No Response 3

GUIDE

FACILITY TYPE	A	B	C	D	E	F	OUTSIDE REGION
1. Base Camp	0	0	0	22	6	5	16
2. Wall Tents/Temporary Camps	33	44	32	23	77	65	0
3. Cabins	4	4	0	0	4	0	0
4. Main Headquarters	0	0	0	0	0	0	6

No Response 4

LODGE

FACILITY TYPE	A	B	C	D	E	F	OUTSIDE REGION
1. Base Camp	20	52	12	26	4	15	58
2. Wall Tents/Temporary Camps	12	12	22	48	50	36	58
3. Cabins	0	0	0	6	6	15	14
4. Main Headquarters	0	20	0	0	0	15	189

No Response 0

3. In the chart below please indicate which type of water, wastewater and refuse systems you use in each section of the study area:
(Air Taxi, Guide and Lodge)

AIR TAXI

SYSTEM TYPE	A	B	C	D	E	F
1. Septic System	0	0	0	3	0	0
2. Portable	0	0	1	2	1	0
3. Permanent Outhouse	0	0	0	0	0	0
4. Temporary Outhouse	1	0	0	0	4	5
5. Water Well	0	0	0	3	0	0
6. Incinerate Trash	2	2	2	2	2	2
7. Landfill Trash	0	0	0	0	0	0
8. Fly Out Trash	8	6	8	10	13	12

No Response 2

GUIDE

SYSTEM TYPE	A	B	C	D	E	F
1. Septic System	0	0	0	2	0	0
2. Portable	1	0	0	1	1	0
3. Permanent Outhouse	1	0	0	0	1	0
4. Temporary Outhouse	6	3	5	7	7	5
5. Water Well	0	0	0	0	1	0
6. Incinerate Trash	2	2	2	2	5	3
7. Landfill Trash	0	0	0	0	1	0
8. Fly Out Trash	8	4	4	6	10	6

No Response 3

LODGE

SYSTEM TYPE	A	B	C	D	E	F
1. Septic System	1	4	0	1	0	1
2. Portable	0	0	1	2	1	0
3. Permanent Outhouse	0	0	0	0	0	1
4. Temporary Outhouse	3	3	5	9	8	5
5. Water Well	1	1	1	2	0	1
6. Incinerate Trash	3	2	3	6	5	2
7. Landfill Trash	0	2	0	1	1	0
8. Fly Out Trash	10	9	10	17	15	11

No Response 0

4. In the following chart please indicate by section where your clients fished and what species they fished for within the study area in 1985. Answer in terms of percentage of time spent in each section fishing for that particular species (percentages can be estimated and should equal 100%). (Guide and Lodge)

NORMALIZED ADJUSTMENT OF MEAN % OF ALL RESPONDENTS

GUIDE

SPECIES	A	B	C	D	E	F	100%
1. Silver Salmon	0	0	7.1	27.9	52.2	12.8	100%
2. King Salmon	0	0	4.5	51.0	40.5	4.5	100%
3. Rainbow Trout	13.9	0.5	3.7	2.8	65.2	13.9	100%
4. Grayling	30.4	1.3	5.4	3.8	25.8	33.3	100%
5. Arctic Char	32.0	10.0	8.0	4.9	30.1	15.0	100%
6. Northern Pike	2.5	0	25.1	12.5	42.5	17.4	100%

No Response 3

LODGE

SPECIES	A	B	C	D	E	F	100%
1. Silver Salmon	2.6	0	7.6	47.8	35.4	6.6	100%
2. King Salmon	0	0	2.3	73.2	22.6	1.9	100%
3. Rainbow Trout	7.3	8.3	14.4	14.8	47.1	8.1	100%
4. Grayling	9.7	8.0	18.5	16.9	34.7	12.2	100%
5. Arctic Char	10.6	22.8	10.9	13.7	25.2	16.8	100%
6. Northern Pike	6.3	19.7	8.4	26.0	24.8	14.8	100%

No Response 4

(Air Taxi)

In the following chart please indicate the primary activities of your clients in 1985 within the study area. Answer in terms of percentage of time spent in each section in each activity (percentages can be estimated and should equal 100%).

ACTIVITY	A	B	C	D	E	F	100%
1. Fishing	4.7	4.0	6.5	23.8	33.2	27.8	100%
2. Hunting	6.9	1.2	3.8	9.2	35.8	43.1	100%
3. Boat/Raft Trip	12.9	5.6	8.6	9.0	30.8	33.1	100%

No Response 2

5. The following questions concern your operation's policy on catch and release and harvest limits:
(Guide and Lodge Only)

- 5a. Do you have a catch and release only (i.e., no kill) policy for the following species?
(Guide and Lodge only)

	<u>Guides</u>	<u>Lodges</u>
1. Silver Salmon	4	4
2. King Salmon	3	4
3. Rainbow Trout	13	24
4. Grayling	8	16
5. Arctic Char	4	16
6. Northern Pike	4	8
No Response	0	0

- 5b. Do you insist that clients keep fewer fish than the legal limits imposed for that species by the Alaska Department of Fish & Game? (Guide and Lodge only)

	<u>Guides</u>	<u>Lodges</u>
1. Silver Salmon	13	17
2. King Salmon	14	17
3. Rainbow Trout	14	25
4. Grayling	13	25
5. Arctic Char	13	23
6. Northern Pike	12	16
No response	0	0

6. Please estimate how many man-days (i.e., number of clients times the number of days fished) in the following months your clients fished for each species in 1985 (count each man day only once, for the primary species being sought):
(Guide and Lodge only)

TOTAL # OF MAN-DAYS PER MONTH FOR ALL RESPONDENTS

GUIDE

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Silver Salmon	0	0	0	0	0	0	132	89	8	0	0	0
2. King Salmon	0	0	0	0	0	160	771	12	0	0	0	0
3. Rainbow Trout	0	0	0	0	0	21	246	100	35	10	0	0
4. Grayling	0	0	0	15	0	9	158	45	32	10	0	0
5. Arctic Char	0	0	0	0	0	5	12	22	10	10	0	0
6. Northern Pike	0	0	0	0	0	2	6	5	10	10	0	0

No Response 5

LODGE

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Silver Salmon	0	0	0	0	0	0	0	1692	999	10	0	0
2. King Salmon	0	0	0	0	0	1269	1419	100	0	0	0	0
3. Rainbow Trout	0	0	0	0	14	353	349	370	428	125	0	0
4. Grayling	0	0	0	0	14	183	214	226	225	25	0	0
5. Arctic Char	0	0	0	0	14	287	248	260	249	125	0	0
6. Northern Pike	0	0	0	0	0	69	84	96	74	2	0	0

No Response 10

(Note: Completion of responses varied, including no response.)

7. In the following chart please indicate what species your clients hunted in each section of the study area during 1985 and the percentage of time spent hunting for each particular species (percentages should equal 100%).
(Guide and Lodge only)

NORMALIZED ADJUSTMENT OF MEAN % OF ALL RESPONDENTS

GUIDE

SPECIES	A	B	C	D	E	F	100%
1. Caribou	1.8	0	1.8	16.8	54.8	24.8	100%
2. Moose	5.0	0	13.0	6.9	27.1	48.0	100%
3. Brown Bear	24.2	21.4	11.3	4.4	18.6	20.1	100%

No Response 2

LODGE

SPECIES	A	B	C	D	E	F	100%
1. Caribou	0	0	4.0	0	50.0	46.0	100%
2. Moose	0	0	8.4	8.4	30.5	52.7	100%
3. Brown Bear	47.2	0	0	0	0	52.8	100%

No Response 0

8. Please indicate how many man-days (number of clients times the number of days) in the following months during 1985 your clients hunted for each species:
(Guide and Lodge only)

TOTAL # OF MAN-DAYS PER MONTH FOR ALL RESPONDENTS

GUIDE

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Caribou	0	0	0	0	0	0	0	85	231	21	54	72
2. Moose	0	0	0	0	0	0	0	70	175	0	0	72
3. Brown Bear	0	0	0	10	55	0	0	0	58	123	0	0

No Response 2

LODGE

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Caribou	10	10	20	0	0	0	0	120	271	90	10	10
2. Moose	0	0	0	0	0	0	0	0	160	0	0	0
3. Brown Bear	0	0	0	0	0	40	0	0	160	60	0	0

No Response 2

(Note: many operators either did not respond to this question (#8 above) or did not complete the question.)

9. For clients for whom fishing or hunting were not the primary activities, please indicate which type of recreational activities your clients participated in during the 1985 season in each section of the study area, and what percentage of the total time you spent doing that activity:
(Guide and Lodge only)

NORMALIZED ADJUSTMENT OF MEAN % OF ALL RESPONDENTS

GUIDE

ACTIVITY	A	B	C	D	E	F	100%
1. Boating	35.4	16.8	15.5	15.5	10.4	6.4	100%
2. Hiking	50.0	16.7	0	0	5.6	27.7	100%
3. Scenic/Wildlife Viewing	42.5	12.3	6.2	9.6	7.3	22.1	100%
4. Other	0	26.7	0	11.2	17.7	44.4	100%

No Response 4

LODGE

ACTIVITY	A	B	C	D	E	F	100%
1. Boating	0	33.6	13.6	20.0	6.4	26.4	100%
2. Hiking	0	33.6	0	0	0	66.4	100%
3. Scenic/Wildlife Viewing	0	14.3	0	35.2	22.2	28.3	100%
4. Other	5.6	5.6	5.6	38.8	5.6	38.8	100%

No Response 1

10. Please indicate how many man-days (number of clients times the number of days) in the following months in 1985 your clients participated in the following activities:
(Guide and Lodge only)

TOTAL # OF MAN-DAYS PER MONTH FOR ALL APPLICANTS

GUIDE

ACTIVITIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Boating	0	0	0	0	0	40	166	38	0	0	0	0
2. Hiking	0	0	0	0	0	16	36	2	10	0	0	0
3. Scenic/ Wildlife Viewing	0	0	0	0	0	40	160	39	69	0	0	0
4. Other	0	0	0	0	0	0	2	19	0	0	0	0

No Response 6

LODGE

ACTIVITIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1. Boating	0	0	0	0	0	127	205	255	185	20	0	0
2. Hiking	0	0	0	0	0	0	40	60	30	5	0	0
3. Scenic/ Wildlife Viewing	0	0	0	0	0	54	79	67	67	5	0	0
4. Other	0	0	0	0	122*	0	36*	48	0	0	0	0

No Response 3

*Based on one response

3.3 MAPPED INFORMATION

3.3.1 PURPOSE

The intent of the mapped information is to provide the Bristol Bay CRSA with a detailed distribution of the commercial recreation activities in the study area. Part Three of the questionnaire directed respondents to map the following categories of information:

- 1) Facilities and Access Areas
 Lodge facilities
 Cabins
 Wall Tent Camps
 Storage Areas
 Air Strips and Float Plane Landing Areas
 Boat Docks and Ramps
- 2) Regularly Used Sport Fishing Areas
 Rainbow Trout
 King Salmon
 Silver Salmon
 Red Salmon
 Chum Salmon
 Pink Salmon
 Grayling
- 3) Regularly Used Sport Hunting Areas
 Moose
 Caribou
 Brown Bear
- 4) Float Trip Areas
 Guided Boat Trips
 Unguided Boat Trips

All of the face-to-face and mail-out respondents were asked to map this information on a U.S. Geological Survey composite map of the study area. As

shown in Maps 1-4, the study area was divided into six sections, A through F. In both types of interviews some respondents chose not to complete the map portion of the questionnaire. Therefore, the number of maps received is less than the number of questionnaires completed and the data does not provide a complete picture of commercial recreation activities. The mapped information does, however, provide a reasonable indication of the distribution of effort.

Information from individual maps was summarized on one of four maps: distribution of sport fishing effort (Map 1), distribution of sport hunting effort (Map 2), distribution of float trip effort (Map 3) and distribution of facilities (Map 4). Each map is divided into sub-areas A through F, corresponding with the questions from Part Two of the Questionnaire. These maps show the number of commercial recreation service providers operating in various parts of the study area. The location of specific facilities and hunting and fishing areas was generalized over a larger geographic area to protect commercial recreation service providers.

3.3.2 RESULTS

Sport Fishing

Mapped data provides some indication of the distribution of total fishing effort, as well as fishing effort for individual species (see Map 1). The information is portrayed in terms of the numbers of operators on a given stretch of river. Fishing is particularly concentrated in the Portage Creek portion of area A and in areas E and the lower portion of F. It is likely that significant levels of boat and air traffic are associated with fishing activities.

Sport Hunting

Three major game animals are hunted in the study area: caribou, moose and bear. As shown in Map 2, hunting for these animals occurs in all sections of the study area. Hunting for caribou and moose is more concentrated in areas E and F than in other areas.

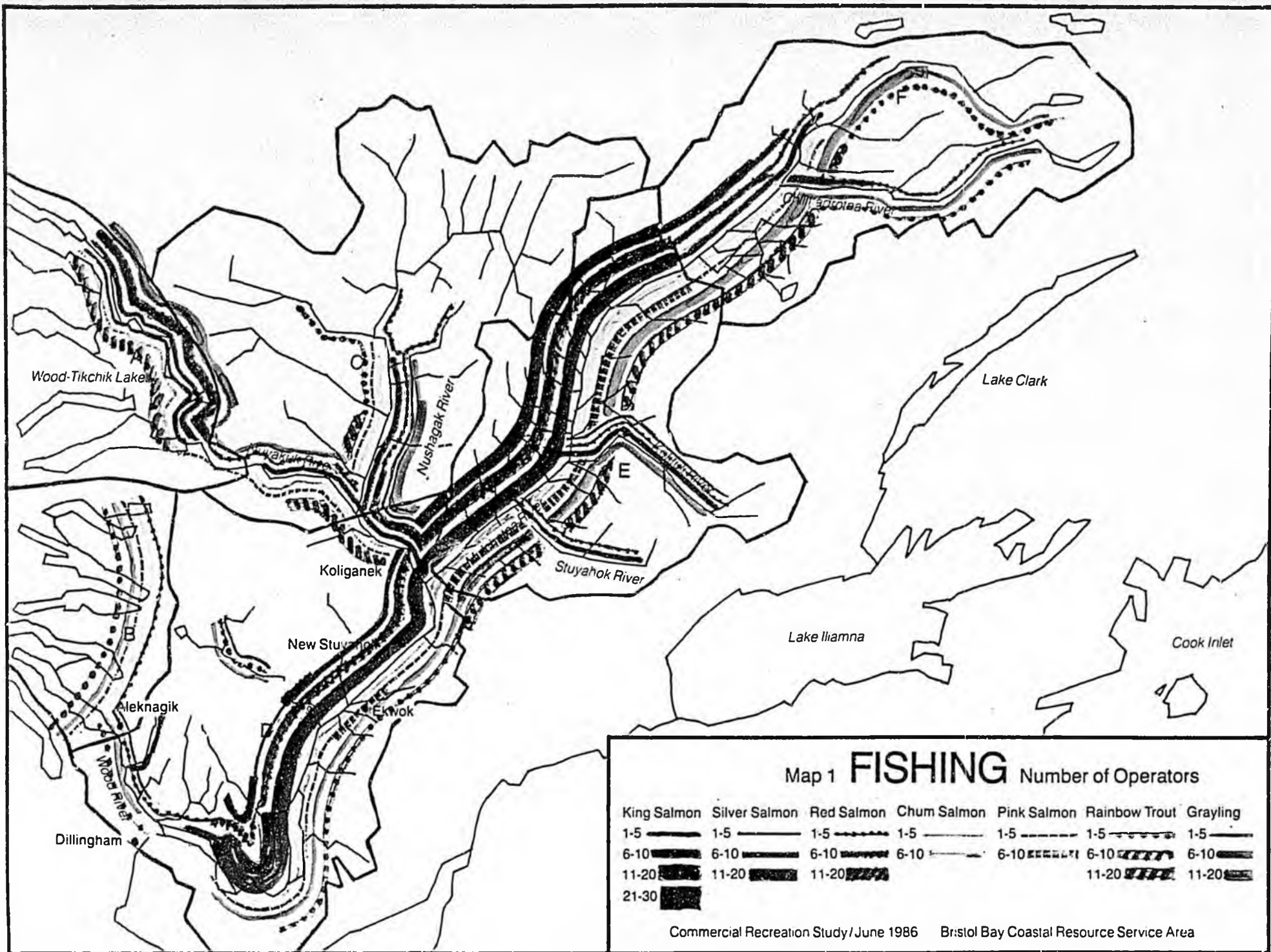
Boat Trips

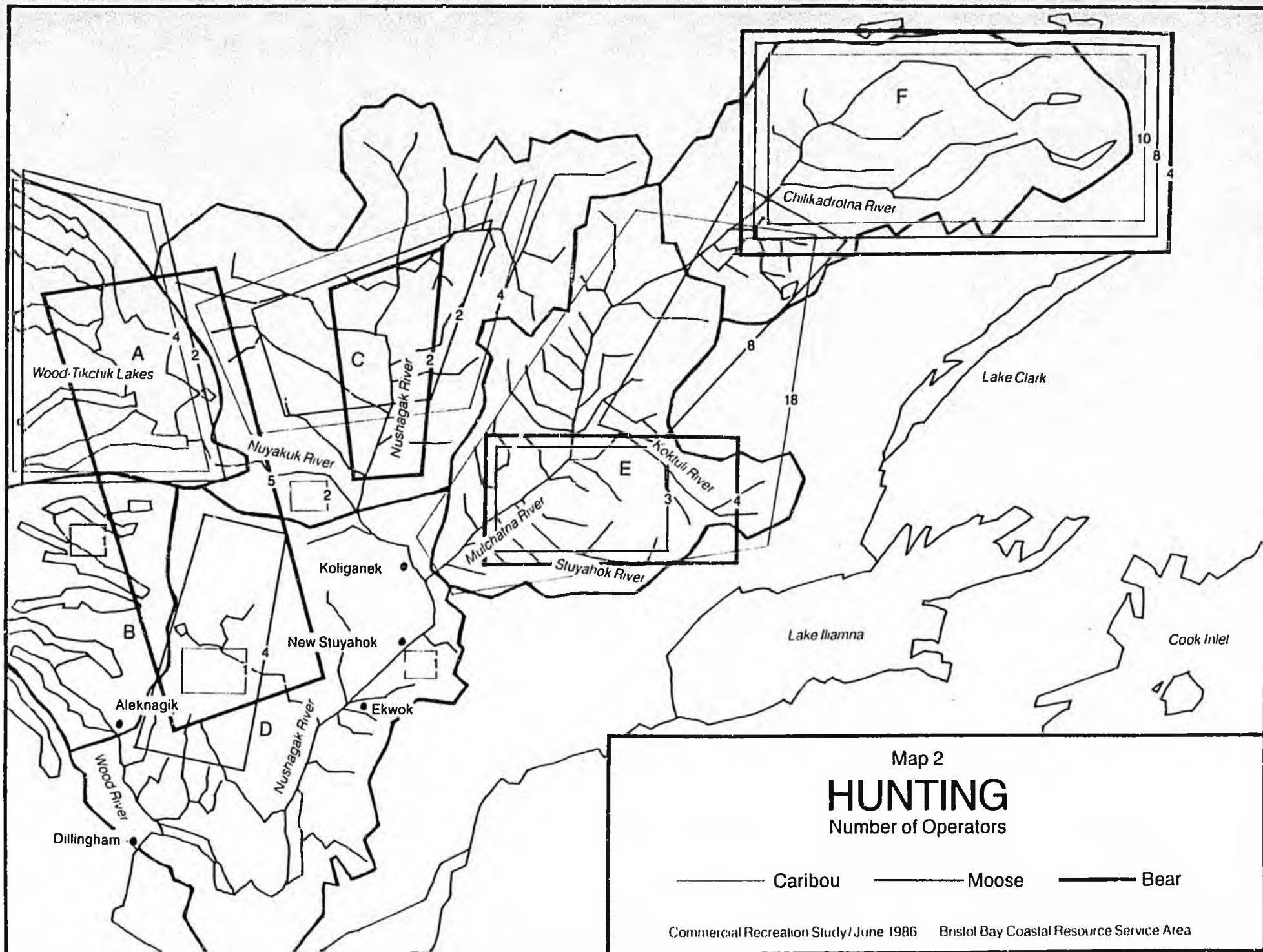
Boat trips are defined as guided and unguided trips taken down river, not specifically associated with hunting and fishing activities. As indicated in Question 14 of the survey, guided boat trips are second only to rainbow trout fishing among the guides who completed the survey. Unguided boat trips are more common with air taxis, although some lodges provide clients with equipment for unguided boat trips.

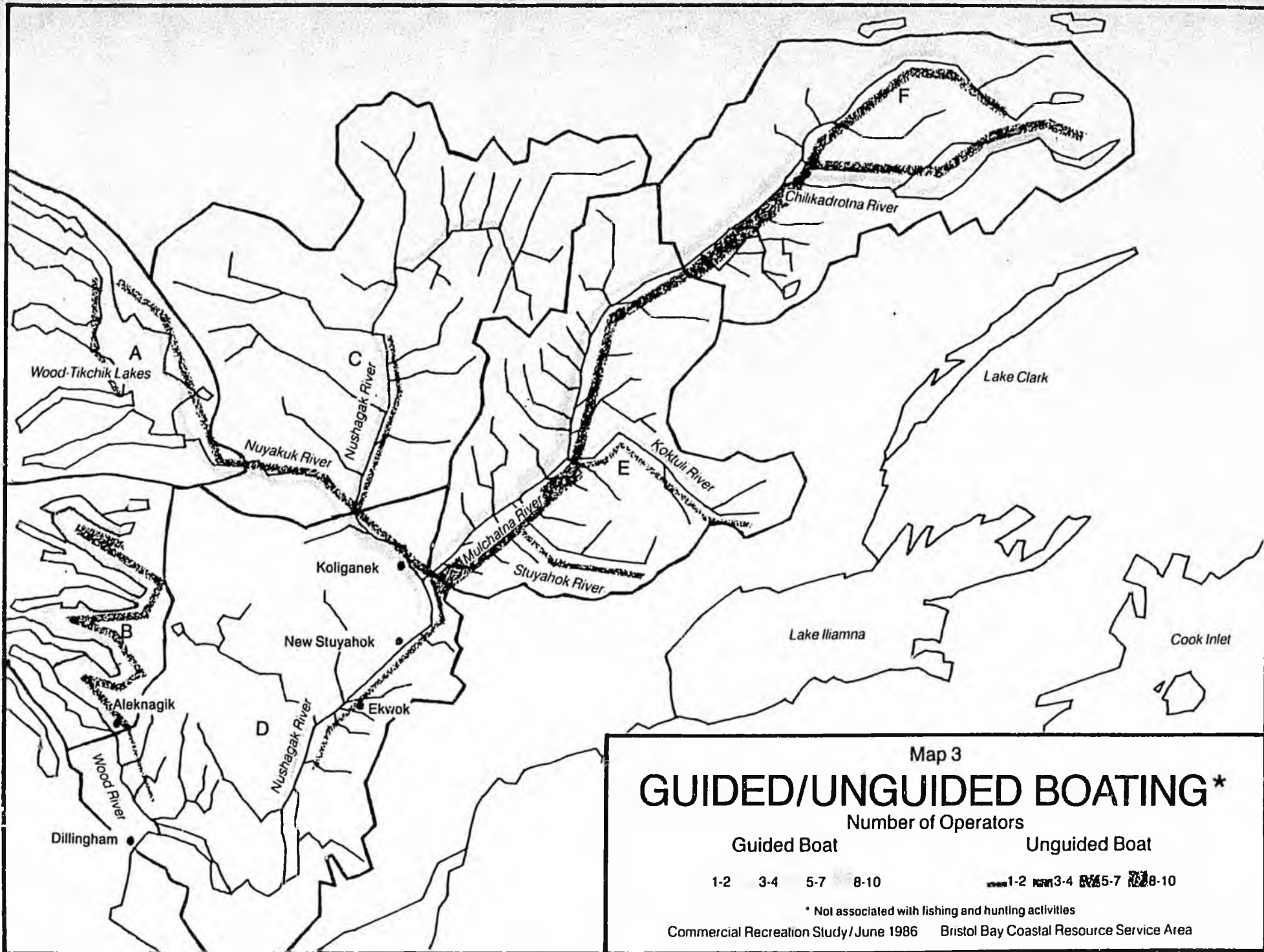
With the exception of the lower Nushagak River, boat trip activity is distributed throughout the study area (see Map 3). Boat trip activities are most popular in areas E and F from the Mulchatna River from its headwaters to its confluence with the Nushagak River. Floating the Wood-Tikchik Lakes system ranks second in popularity.

Facilities

It is unlikely that all the facilities used by commercial service providers







within the region were included on the maps returned in the surveys (Map 4). Few lodges were shown in the study area: those that were shown are concentrated in areas A and B, with one or two lodges each in areas D and F. Likewise, cabins are concentrated in areas A and B, with a few cabins located in area D. Tent sites were distributed throughout the study area, with concentrations of sites along the upper Nushagak (area C) and the Mulchatna Rivers (areas E and F).

The majority of air access is by float plane, with air strip/sand bar access points located along the Mulchatna river and its tributaries. Float plane activity is particularly heavy in areas E and F, followed by areas A and B.

3.4 ANALYSIS

3.4.1 PROJECTIONS

The compilation of data from the survey respondents (referred to as the survey sample) provided a great deal of information about the different types of uses and facilities for the lodges, guides and air taxi businesses operating in the study area. Total coverage of all operations was not obtained, since all firms contacted did not respond to the survey (see Table 3-1).

However, much of the information from the survey can stand alone as representative of the total number of businesses operating in the study area (referred to as the population). For example, the use areas, indications of the type of facilities typically used and many others shape a general profile. For some questions however, it is useful to project the survey findings from the sample to the total population of operators, thus gaining a better indication of the total magnitude of impact to the region than is apparent from the survey responses. This section of the report will make such projections for a number of selected questions.

Total Number of Visitors

One of the variables we wish to project to the total population is the total number of clients visiting the study area in 1985. The total number of clients for the lodges responding to the questionnaire was 4,254; the total number of clients for guides was 597 and the total number of clients for air taxi operators was 2,822.

To estimate the total number of visitors for all of the business operations in the area, including those who did not respond to the survey, a point estimate can be obtained by multiplying the average number of clients for air taxi, guide and lodge operations, then multiply this average by the total number of businesses in the population. However, by using some of the statistical calculations on the data provided by the survey respondents, we can improve upon this technique and instill a greater degree of confidence in the estimates. The information for projecting the total number of clients is as follows:

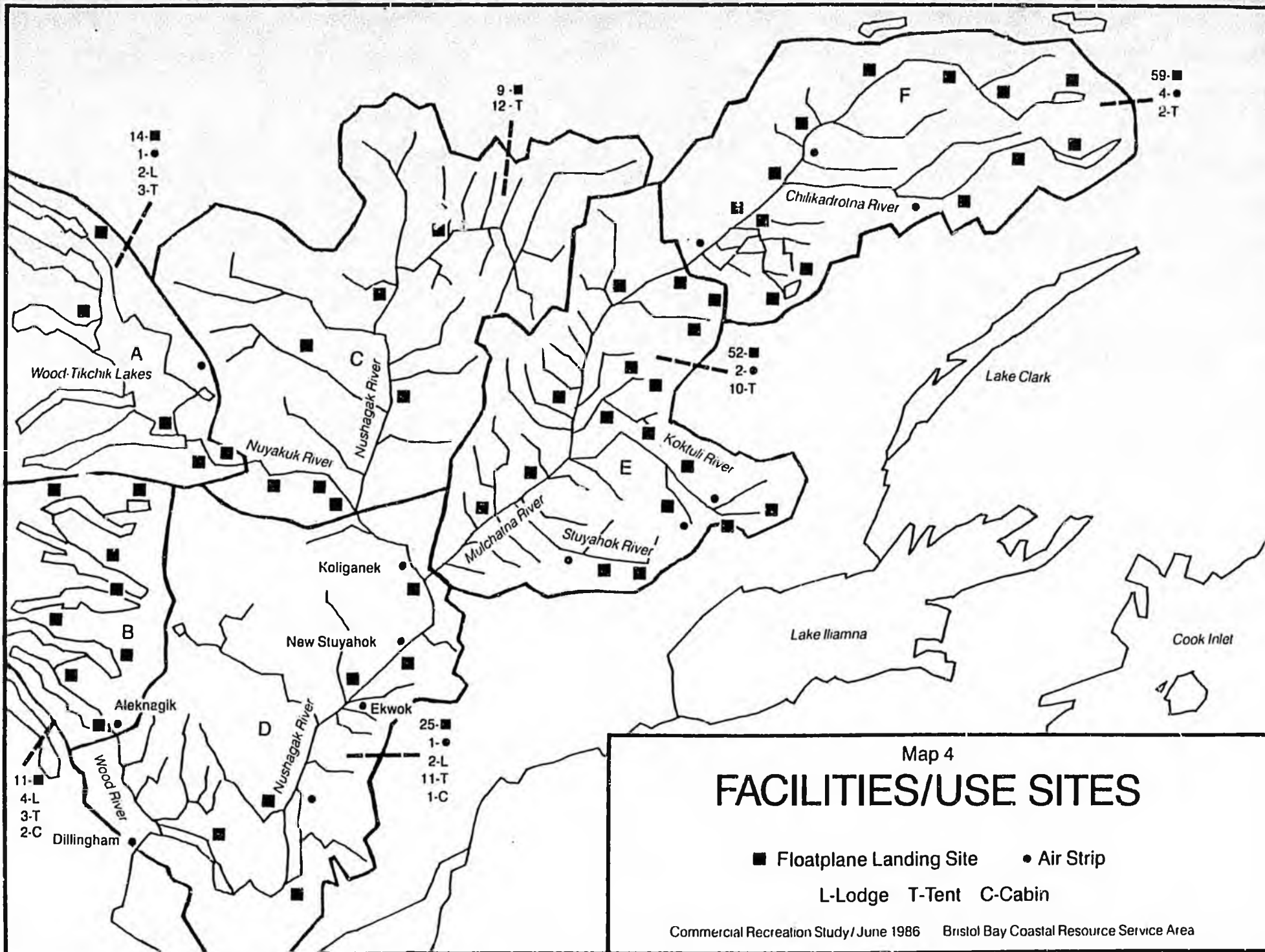


TABLE 3-2

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Average	141.10	35.11	170.16
# in Sample	20	17	25
Sample Sum	2822	597	4254
# in Population	42	47	38
Point Estimate	5926	1650	6466
90% Confidence Interval	3300 to 8552	926 to 2378	5670 to 7262

This information shows that we can be 90% certain that the actual total number of visitors for the entire population of lodges for example, was between 5,670 and 7,262. The point estimate falls in approximately the middle of this range, so it can be used as a reasonable estimate for the total number of visitors, if a single number is needed.

It should be noted that in making these projections, we have assumed that the data are normally distributed. Since the population is small and there are relatively large proportions of the populations in our samples, it was necessary to apply a correction factor for finite populations to the variances of each of the variables in calculating the confidence intervals.

Man-days of Fishing Effort

Question 6 in Part Two of the survey asked lodge operators and guides to estimate the number of man-days of effort expended by their clients for various species of fish. The summary of this information, including projections to the population follows, by species. The survey did not request this information from the air taxi operators since pre-testing indicated that they were unable to quantify the activities of their clients.

TABLE 3-3

SILVER SALMON

	<u>Guides</u>	<u>Lodges</u>
Average # of Man-days	15.27	168.81
# in Sample	15	16
Sample Sum	229	2701
# in Population	47	38
Point Estimate	718	6415
90% Confidence Interval	128 to 1307	4176 to 8653

KING SALMON

Average # of Man-days	63.00	174.25
# in Sample	15	16
Sample Sum	945	2788
# in Population	47	38
Point Estimate	2961	6622
90% Confidence Interval	768 to 5154	4608 to 8635

TABLE 3-3 (continued)

RAINBOW TROUT

	<u>Guides</u>	<u>Lodges</u>
Average # of Man-days	24.47	109.27
# in Sample	15	15
Sample Sum	412	1639
# in Population	47	38
Point Estimate	1291	4152
90% Confidence Interval	579 to 2003	1952 to 6353

GRAYLING

Average # of Man-days	17.93	59.13
# in Sample	15	15
Sample Sum	59	1183
# in Population	47	38
Point Estimate	843	2247
90% Confidence Interval	262 to 1423	765 to 3729

ARCTIC CHAR

Average # of Man-days	3.93	78.97
# in Sample	15	15
Sample Sum	59	1183
# in Population	47	38
Point Estimate	185	2997
90% Confidence Interval	34 to 336	1107 to 4887

NORTHERN PIKE

Average # of Man-days	2.20	21.67
# in Sample	15	15
Sample Sum	33	325
# in Population	47	38
Point Estimate	103	823
90% Confidence Interval	*	333 to 1314

OTHER SALMON

Average # of Man-days	.53	30.67
# in Sample	15	15
Sample Sum	8	460
# in Population	47	38
Point Estimate	25	1165
90% Confidence Interval	*	129 to 2202

*Relatively low participation rates and a high variance in the man-days of fishing effort reported caused the confidence interval estimated to be non-reportable.

Gross Income

Gross income projections were calculated from the responses to Question 19 of the survey. These projections should be interpreted only as rough estimates, since the limitations of the data from this question do not allow rigorous analysis. The main problem is that the question asked respondents to indicate their gross income within a set of given ranges. As a means to provide some analyses of the income data, the midpoint of each range was calculated to estimate the gross income levels for the total survey respondents.

A second problem is that the size of the ranges was not symmetrical. This was done with the intent to obtain more precise data for the ranges in which the study team pre-supposed many of the operators would fall. We felt that maintaining this detail of range would make the number of ranges excessive, so the decision was made to increase the size of the income range toward the upper end.

The survey results showed that this was not a particularly good decision. The frequency distributions of the responses to Question 19 showed that the majority of operators had gross incomes in the less precise ranges. Another drawback of the asymmetrical ranges was that the mean of ranges could not be used to calculate a point estimate of gross income for the population. If this method were attempted, it would seriously bias the total gross income estimate downward since the relatively smaller income ranges at the lower gross income levels would be weighted the same as the relatively large ranges at the upper end of the income levels.

Taking the above limitations into account, the study team projected the total gross income for all of the operators in the study area, as requested by the CSRA. To calculate this estimate, we applied the frequency distribution tables from the responses to Question 19 and multiplied that by the midpoint of the appropriate gross income range. The results of the calculations are as follows:

	<u>Estimated Sample Income</u>	<u>Number in Sample</u>
Air Taxi	\$4,090,000	21
Guide	\$1,072,500	19
Lodge	\$8,515,000	24

To project the estimated gross income from the survey sample to the population, the mean from the sample was multiplied by the number in the population to obtain a point estimate. The results of these calculations are shown below:

	<u>Estimated Population Gross Income</u>	<u>Number in Population</u>
Air Taxi	\$8,180,004	42
Guide	\$2,653,009	47
Lodge	\$13,492,096	38

These estimates, although subject to the limitations discussed above, were nevertheless calculated in a reasonable manner, and provide point estimates which will be useful data for planning and resource management.

Employment in the Study Area

Employment within the study area for the sample of air taxi, guide and lodge operations was provided by the responses to Questions 25 and 27 for air taxis and by Questions 27 and 29 for guides and lodges. The sample results are summarized below, along with projections of employment to the entire population of businesses within the study area. The data is reported in man-months of employment for the entire year. The distribution of employment during the year for the different types of operations can be reviewed in Section 3.2 of the report.

TABLE 3-4

GUIDE

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Average # Man-months employment	2.05	8.33	20.95
# in Sample	21	18	24
Sample Sum	43	159	503
# in Population	42	47	38
Point Estimate	86	392	796
90% Confidence Interval	24 to 148	320 to 510	655 to 938

PILOTS

Average # Man-months Employment	34.76	1.06	9.83
# in Sample	21	18	24
Sample Sum	730	19	236
# in Population	42	47	38
Point Estimate	1460	50	374
90% Confidence Interval	1021 to 1898	14 to 85	307 to 440

COOKS

Average # Man-months Employment	N/A*	1.78	13.29
# in Sample	N/A	18	24
Sample Sum	N/A	32	319
# in Population	42	47	38
Point Estimate	N/A	84	505
90% Confidence Interval	N/A	42 to 125	382 to 628

*The air taxi survey did not include this job category.

MAINTENANCE

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Average # Man-months Employment	13	1.83	11.87
# in Sample	21	18	24
Sample Sum	273	33	285
# in Population	42	47	38
Point Estimate	546	86	451
90% Confidence Interval	360 to 732	32 to 141	382 to 520

MANAGEMENT/MARKETING

Average # Man-months Employment	17.86	1.17	18.25
# in Sample	21	18	24
Sample Sum	375	21	438
# in Population	42	47	38
Point Estimate	750	78	693
90% Confidence Interval	392 to 1108	10 to 100	498 to 899

LOCAL EMPLOYMENT

Average # Man-months Employment	27.30	.55	6.38
# in Sample	20	20	24
Sample Sum	546	11	153
# in Population	42	47	38
Point Estimate	1146	26	242
90% Confidence Interval	344 to 1924	*	156 to 328

*Relatively low participation rates caused the confidence interval to be non-reportable.

3.4.2 CROSSTABULATIONS

Another method to analyze data from the survey is to crosstabulate one variable with another to see how they are related. For example, the gross income can be crosstabulated with the number of years the air taxi, guide or lodge business has been in operation. The resulting matrix provides an excellent visual representation of the relationship of these two variables.

Before looking at the data, we might have an expectation that the operations which have had a number of years experience would have a relatively higher level of gross income than the operations which began more recently. The crosstabulation display can be utilized to investigate whether or not the expected relationship exists. The use of crosstabulations can be very useful in gaining insight into relationships among the different variables, depending upon the specific intent of a research or planning effort.

There are many crosstabulations which could be calculated using the variables in our survey results. In the following section, we present a relatively small number of potentially useful or interesting relationships. These tables should

be regarded as an indication of the potential for the use of crosstabulations as a research tool, rather than an exhaustive investigation of the survey data. Depending upon the specific uses of the data generated by this survey effort, additional investigation into the relationships between different variables may be useful.

Crosstabulation of Gross Income by Years of Operation

As described above, this crosstabulation shows the relationships between gross income levels and the respective years the survey respondents have been in operation. If we would make the assumption that experience is an important factor in explaining variation in gross income levels, we would expect that the businesses which have been in operation the longest would have the highest levels of gross income. The results of these crosstabulations are shown in Tables 3-5, 3-6 and 3-7. In all of the tables, the number of observations is limited to the actual number of survey respondents who answered both relevant questions.

Table 3-5 shows the crosstabulation between gross income and the years of operation for the air taxi operations sampled. There are 21 operations included in the crosstabulation. The table indicates that the gross income levels are relatively evenly distributed among the operations with differing length of years in business. This matrix of data suggests that our preliminary notion that years of experience is not a major factor in determining gross income. Tables 3-6 and 3-7 report the same crosstabulation for guide and lodge operations. The tables show a similar result: that gross revenue is relatively evenly distributed among the different lengths of operation. If we were going to pursue the search for indicators of differentials in gross income, we could look to other factors such as number of days of operation or the number of employees. Again, depending upon the specific research question, the number of potential crosstabulations is almost unbounded.

Crosstabulation of Total Clients by Trends in Repeat Clients

Tables 3-8, 3-9 and 3-10 show a different type of crosstabulation. Question 12 in the survey asked the respondents to estimate the percentage of repeat clients to their specific operation. The answers to this question varied widely, and therefore do not lend themselves to a crosstabulation without an intermediate step.

In effect, we need to transform an observation variable into a category variable. To do this, we established ranges for the number of clients per year. Table 3-8 shows the result of this crosstabulation for air taxi operations. There were no air taxi businesses reporting a decrease in the number of repeat clients, so the trends were limited to either an increase or a constant status. Since almost all of the air taxi businesses reported the number of repeat clients as increasing, there is not a significant trend to separation by the variable of total clients per year.

Tables 3-9 and 3-10 show the same crosstabulation for guide and lodge operations, respectively. A relatively larger proportion of the guide and lodge businesses reporting indicate a trend of constant numbers of clients. This may indicate that they have been operating at capacity for several years and are not able to accept more clients. A distinct separation in the trend in repeat clients is not shown by the variation in the total number of clients per year.

These examples show how crosstabulations can be used as a tool to assist in researching a specific problem. Future uses of the data accumulated for this project may provide the opportunity to utilize this analytical tool.

TABLE 3-5

Crosstabulation of Gross Income by Years of Operation: Air Taxi

	Years in Operation					Row Total
	1-2 years	3-5 years	6-10 years	11-15 years	more than 20 years	
Gross Income						
0-5000	1					1
5100-20000	1	1			2	4
51000-75000	1	1	1			3
101000-200000	1	1	1	1		4
201000-300000		2		1		3
501000-1000000	1		1		2	4
over 1000000				1	1	2
Column Total	5	5	3	3	5	21

Bristol Bay Survey, 1986

Jon Issacs & Associates/ResourceEcon

TABLE 3-6

Crosstabulation of Gross Income by Years of Operation: Guides

	Years in Operation						Row Total
	1 years	3-5 years	6-10 years	11-15 years	16-20 years	more than 20 years	
Gross Income							
5100-20000	1	1	2	1		1	6
21000-30000		1	1				2
31000-50000	1	1	1		1		4
51000-75000			1				1
76000-100000		1		1			2
101000-200000		1		2	1		4
Column Total	2	5	5	4	2	1	19

Bristol Bay Survey, 1986

Jon Issacs & Associates/ResourceEcon

TABLE 3-7

Crosstabulation of Gross Income by Years of Operation: Lodges

	Years in Operation					Row Total
	1-2 years	3-5 years	6-10 years	11-15 years	more than 20 years	
Gross Income						
21000-30000			1			1
31000-50000			1			1
51000-75000			1		1	2
76000-100000	1		1			2
101000-200000		1	2		1	4
201000-300000	1			1		2
301000-400000		1	1	1		3
401000-500000		1	2		1	4
501000-1000000		1		3	1	5
Column Total	2	3	9	5	4	24

Bristol Bay Survey, 1986

Jon Issacs & Associates/ResourceEcon

TABLE 3-8

Total Clients per Year vs Recent Trend in Repeat Clients: Air Taxis

	Total Clients Per Year: /Air Taxis					Row Total
	1 to 100	102 to 200	201 to 300	601 to 700	801 to 900	
Trend in Repeat Clients increased	8	5	1	1	1	16
remained constant	2	1				3
Column Total	10	6	1	1	1	19

Bristol Bay Survey, 1986

Jon Issacs & Associates/ResourceEcon

TABLE 3-9

Total Clients per Year vs Recent Trend in Repeat Clients: Guides

	Total Clients Per Year: Guides		Row Total
	1 to 100	102 to 200	
Trend in Repeat Clients increased	10	1	11
remained constant	4	1	5
Column Total	14	2	16

Bristol Bay Survey, 1986

Jon Issacs & Associates/ResourceEcon

TABLE 3-10

Total Clients per Year vs Recent Trend in Repeat Clients: Lodges

	Total Clients Per Year: Lodges				Row Total
	1 to 100	102 to 200	201 to 300	401 to 500	
Trend in Repeat Clients increased	3	8	4	1	16
remained constant	3	2	3		8
Column Total	6	10	7	1	24

Bristol Bay Survey, 1986

Jon Issacs & Associates, ResourceEcon

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 INTRODUCTION

The Bristol Bay Coastal Resource Service Area (CRSA) initiated this study of commercial recreation service providers to obtain information on the characteristics of commercial recreation activities in the Nushagak-Mulchatna River drainages. Two major products were developed as part of the commercial recreation study: a current directory of air taxi, guide and lodge operators currently providing commercial recreation services in the study area, and data collected through a survey of these operators.

The directory is a means of future communication and coordination between the CRSA Board and commercial recreation service providers. Data collected increases CRSA board, and other government agency, understanding of recreation needs and issues. This will result in facilitating incorporation of recreation considerations into permit review and planning activities.

4.2 SUMMARY OF DATA ANALYSIS

A short summary of selected data on commercial recreation characteristics is presented below:

OPERATOR CHARACTERISTICS

Number and Type of Commercial Service Operator

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Sample TOTAL 71	24	22	25
Population TOTAL 127	42	47	38

CLIENT PROFILE

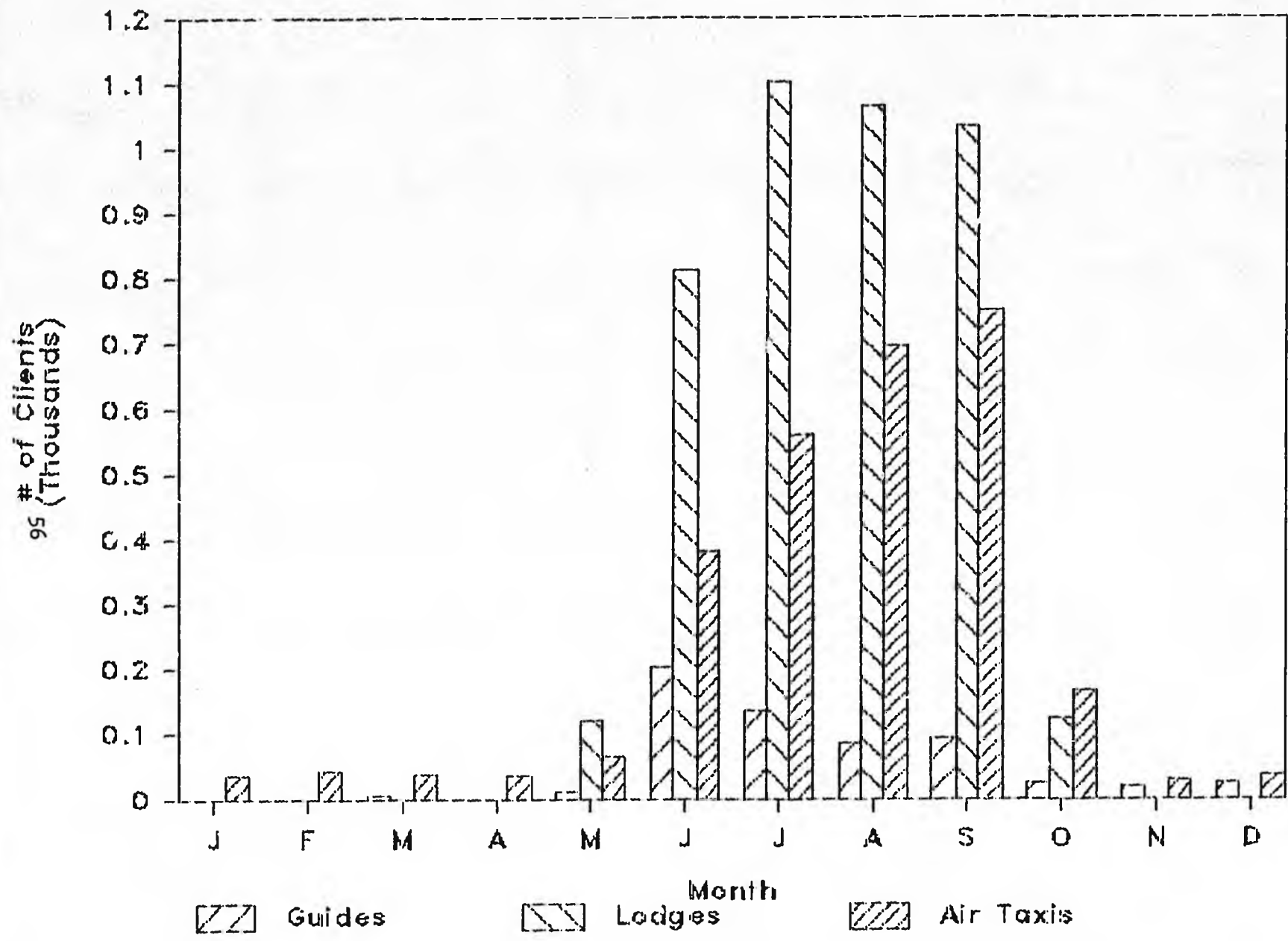
Average and Total # of Clients 1985

SAMPLE	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Average	141	35	170
Total TOTAL 7673	2822	597	4254
POPULATION Projected Total (90% Confidence Level)	3300 to 8552	926 to 2378	5670 to 7262

Clients by Month of Operation

See Figure 4-1

Figure 4-1 1985 Clients by Month



ACTIVITY PREFERENCES

Primary Activities Sought by Client (Ranking by total points)

<u>Activity</u>	<u>Air Taxis</u>	<u># of 1st Preference</u>		
Fishing	46	10		
Hunting	39	7		
Boating/rafting	22	1		
	<u>Guides</u>	<u># of 1st Preference</u>	<u>Lodges</u>	<u># of 1st Preference</u>
Rainbow Trout	123	2	240	11
King Salmon	105	4	223	10
Silver Salmon	107	0	190	1
Guided Boating	112	8	30	0
Moose Hunting	42	1	22	0
Bear Hunting	47	2	14	0
Caribou Hunting	42	1	29	0

INCOME AND EXPENSES

Average Estimated Gross Income
(average of point estimate)

Air Taxi	\$194,762
Guide	\$ 56,447
Lodge	\$354,792

Projected Total Study Area Income of Operator Population
(point estimate)

Air Taxi	\$ 8,810,004
Guide	\$ 2,653,009
Lodge	\$13,492,096
TOTAL	\$24,955,109

EMPLOYMENT

Maximum # of Employees Per Month by Category

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Guides	7	35	111
Pilots	82	2	45
Cooks	0	7	67
Maintenance	29	12	4
Management/Marketing	34	4	4

AREA USE PERCEPTIONS

Perception of Restrictions to Access (% of Sample)

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Access Restrictions From National Park Creation or Expansion	55	40	48
Access Restrictions From Conveyance of Land to Native Corporations	50	40	75
Hunting and Fishing Restrictions on National Parks	45	10	40
Other Restrictions	5	25	20
No Change In Use	25	30	20

Changes in Areas Used for Recreation Since 1981 (% of Sample)

	<u>Air Taxis</u>	<u>Guides</u>	<u>Lodges</u>
Decline in Quality From Crowding	41	55	80
Decline in Abundance of Fish	23	5	36
Decline in Abundance of Wildlife	14	10	16

DISTRIBUTION OF ACTIVITY AND EFFORT

Distribution of Air Taxi Activity by Subregion

See Figure 4-2

Distribution of Guide Activity by Subregion

See Figure 4-3

Distribution of Lodge Activity by Subregion

See Figure 4-4

For further information on survey results, refer to Chapter 3.0 of this report.

Client Residency

See Figure 4-5

Figure 4-2 Air Activity Distribution
Hunting and Other Effort

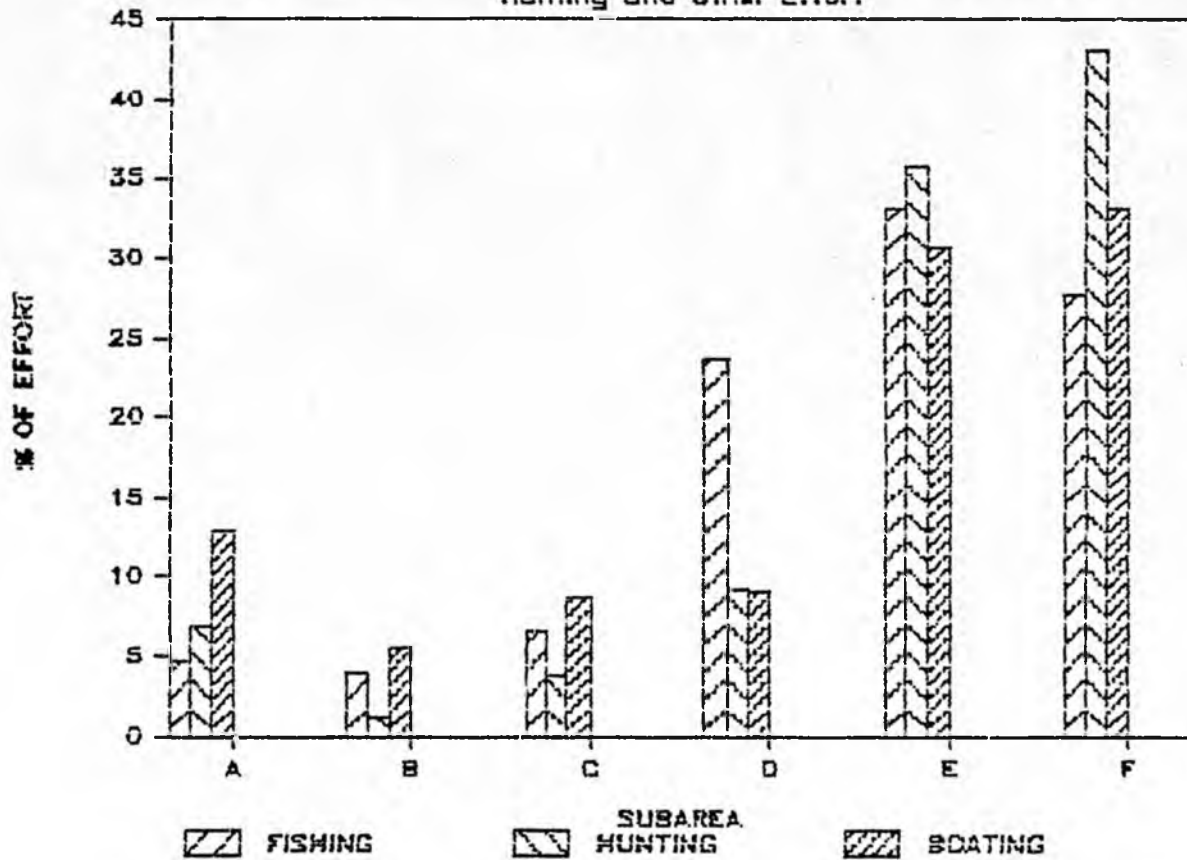


Figure 4-3 Guide Activity Distribution

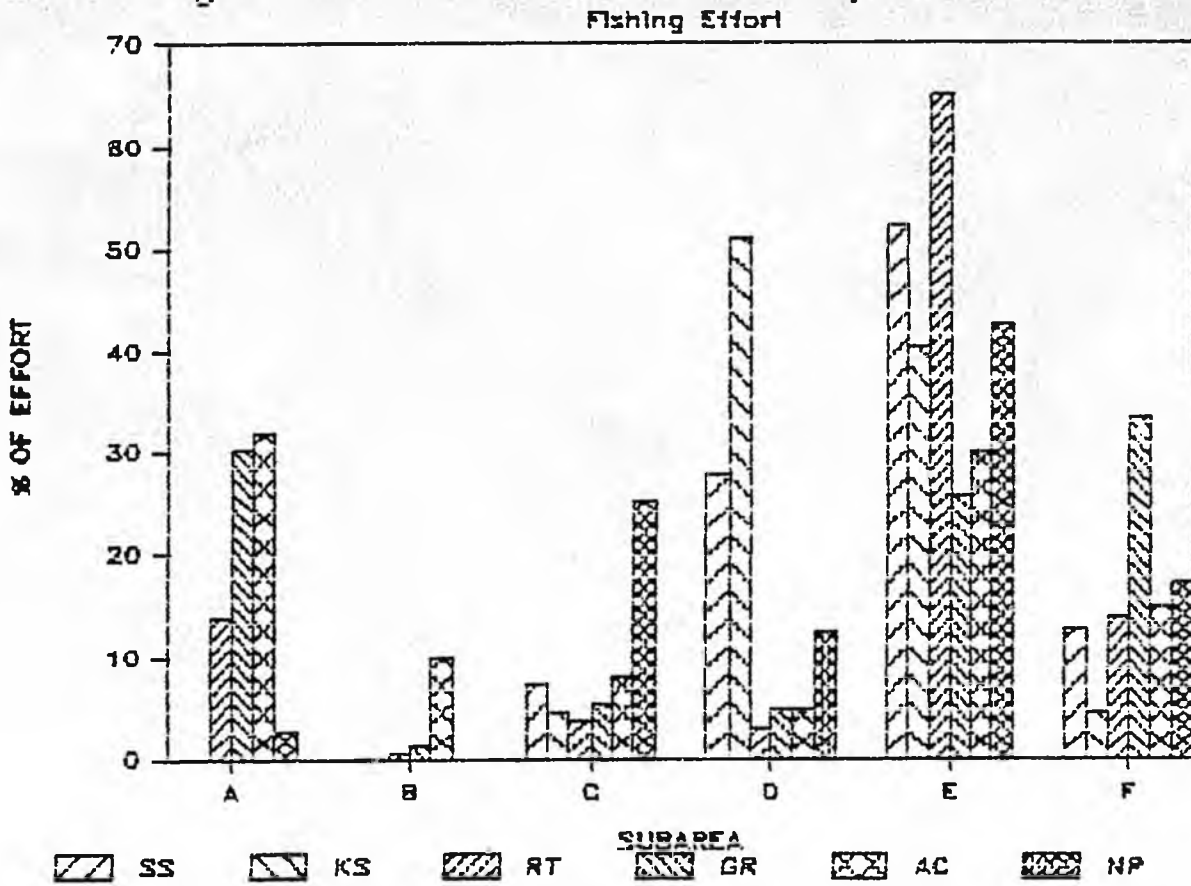


Figure 4-3 Guide Activity Distribution

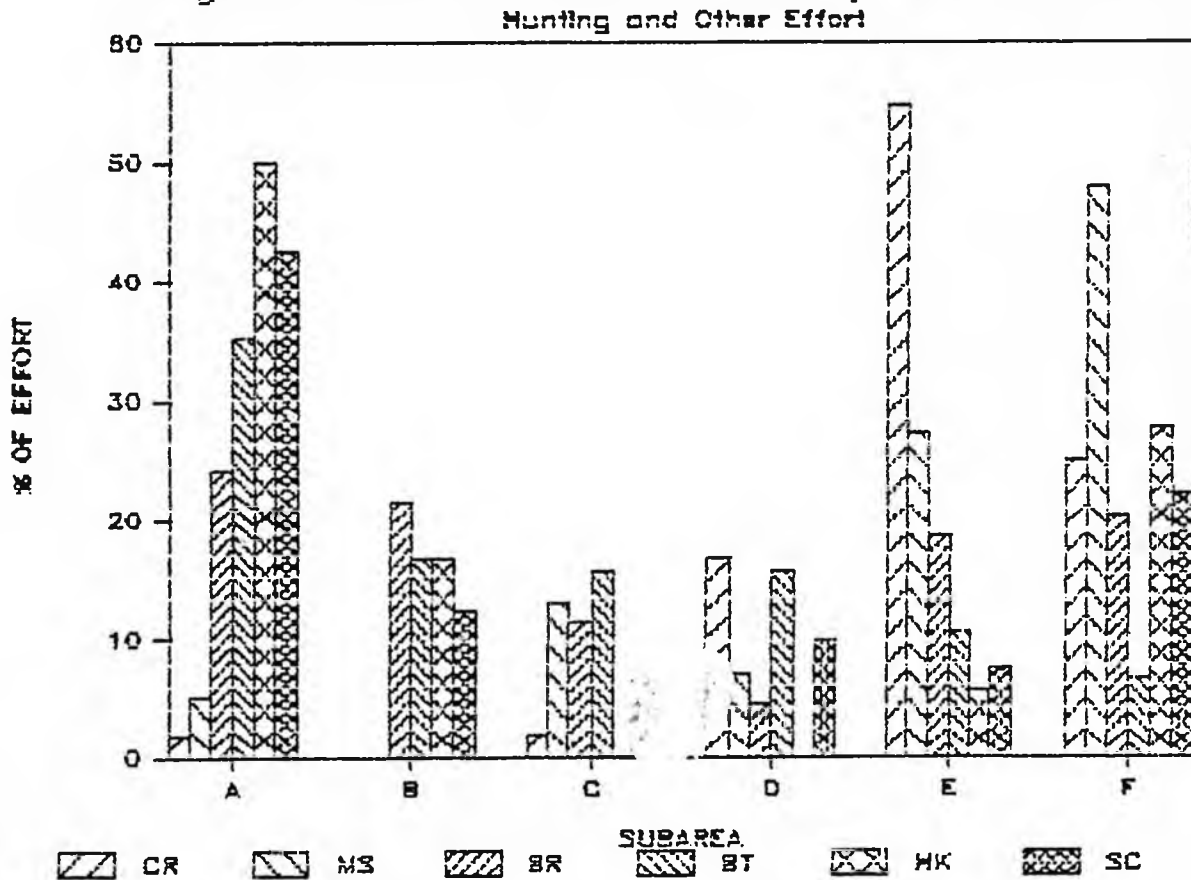


Figure 4-4 Lodge Activity Distribution
Fishing Effort

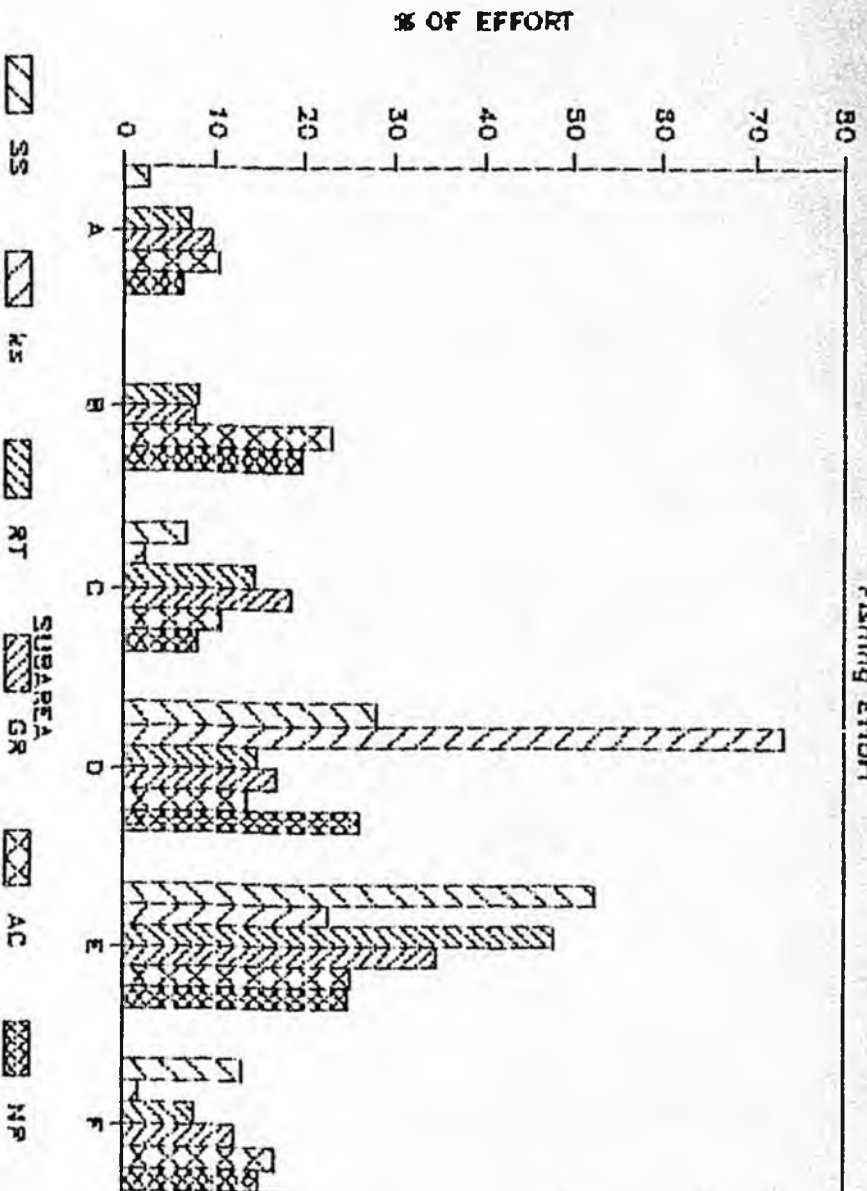


Figure 4-4 Lodge Activity Distribution
Hunting and Other Effort

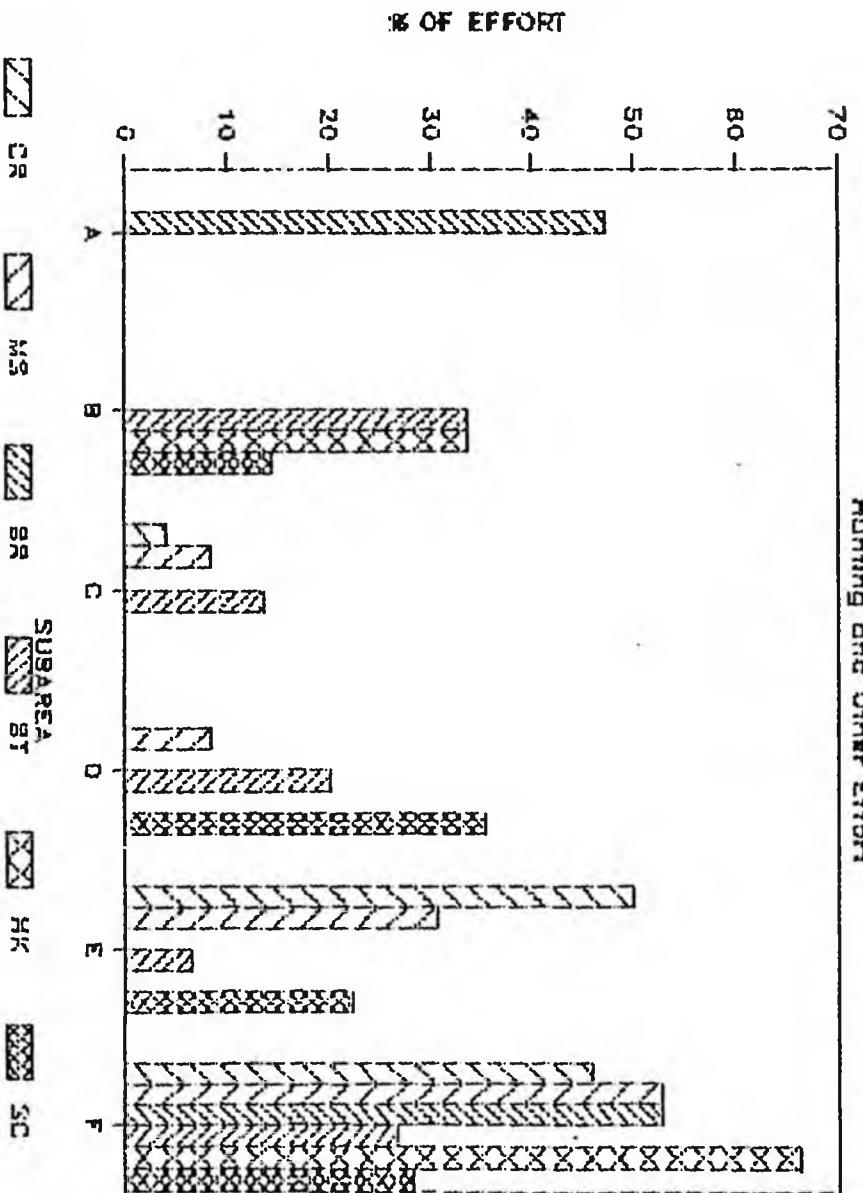


Figure 4-5a Client Residence: Air Taxi

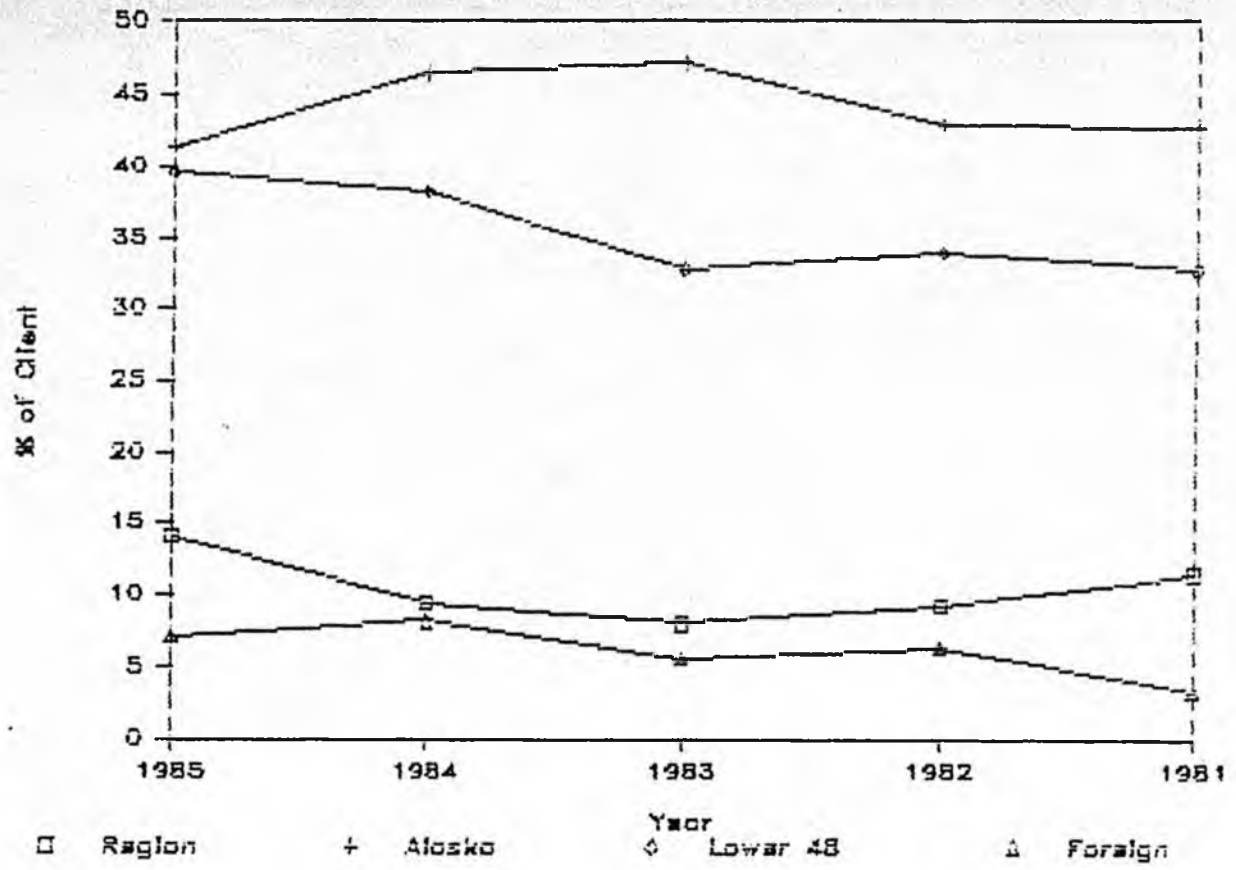


Figure 4-5b Client Residence: Guide

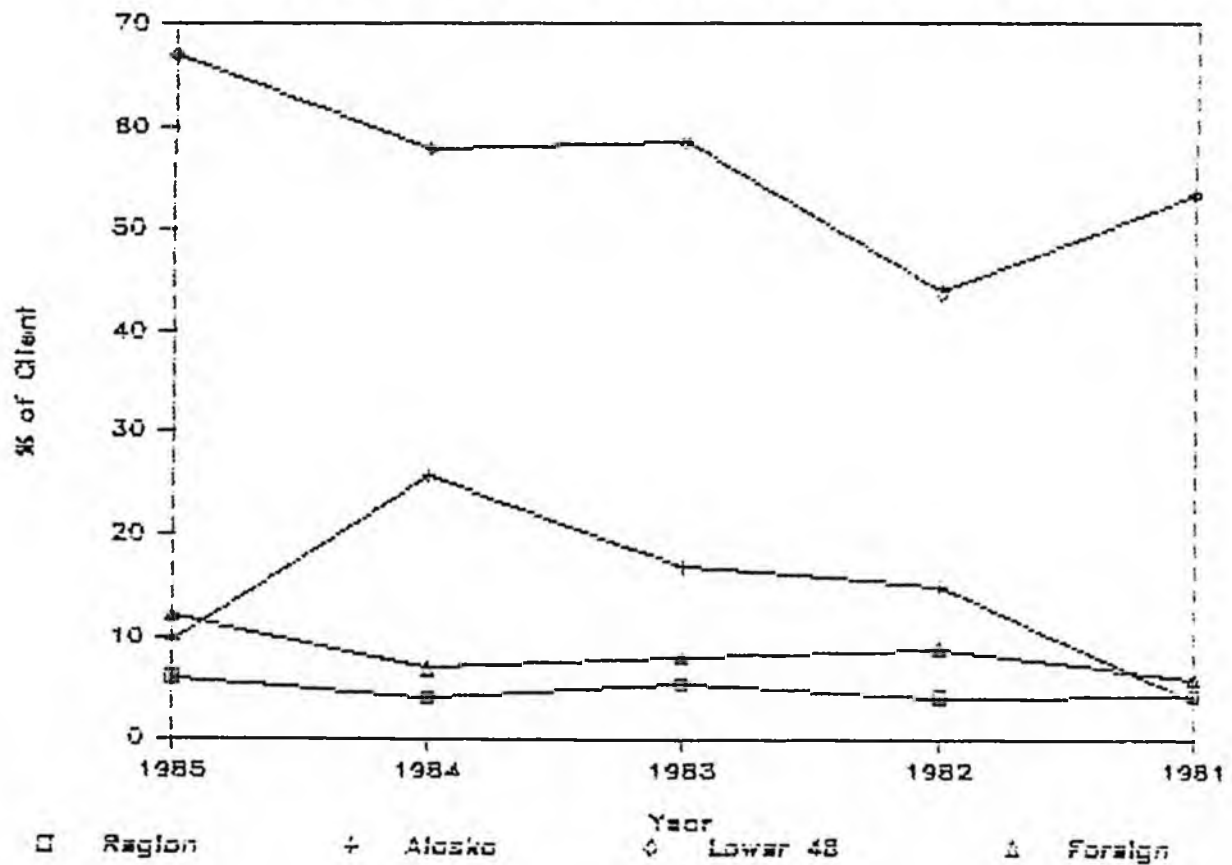
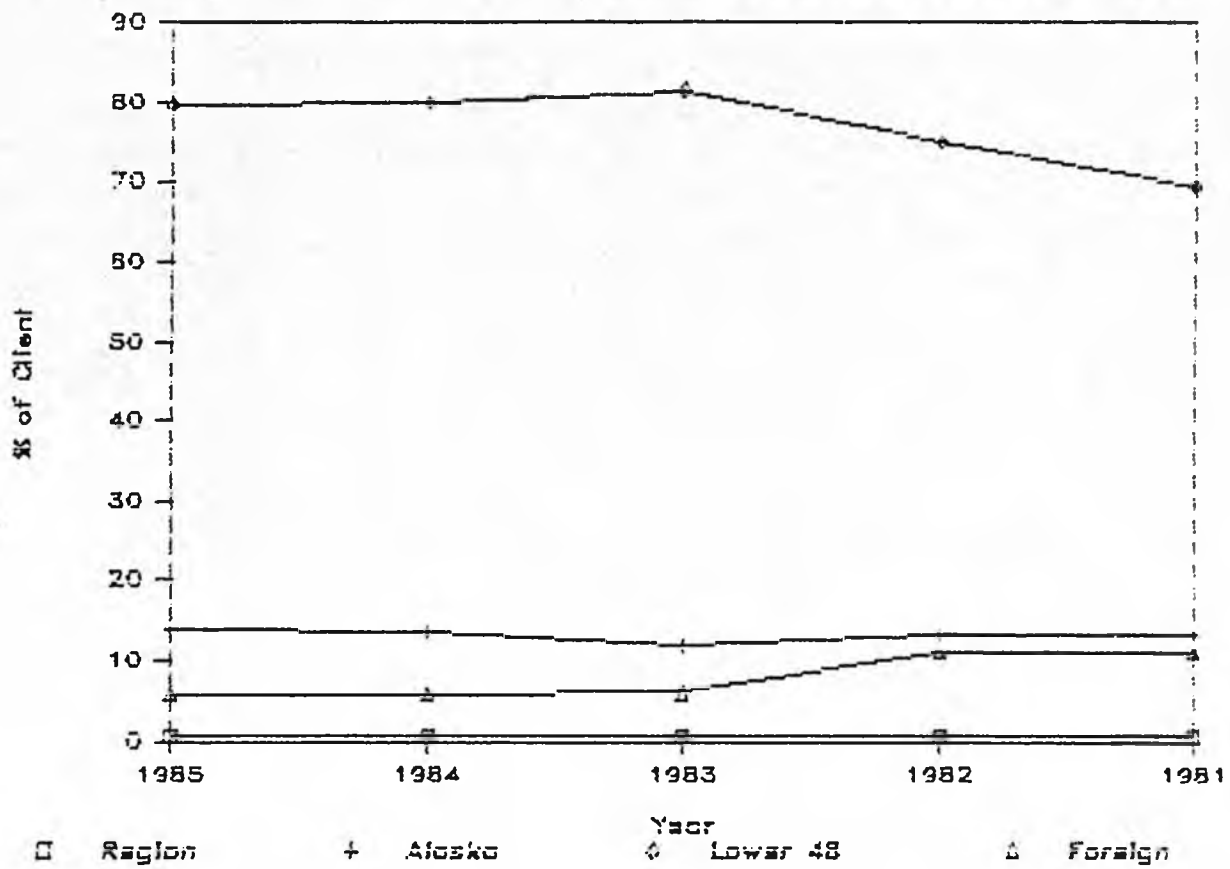


Figure 4-5c Client Residence:Lodge



4.3 COMMUNICATION AND COORDINATION

COMMUNICATION

The relative lack of communication between commercial recreation service providers and residents of the region has historically limited cooperation between the two groups. At the outset of the project, an atmosphere of mutual suspicion existed between the Bristol Bay CRSA and commercial service providers. The CRSA was aware of potential conflicts between recreation activities and other uses of area resources, primarily subsistence and commercial fishing. The CRSA realized they knew little of the extent and nature of commercial recreation activities and sponsored this study to obtain information. The study revealed that most commercial recreation service providers knew little of the purpose and responsibilities of the Bristol Bay CRSA, and what interests they represented. Service providers were also unclear as to the purpose of collecting survey data and how the data would be used.

As contact was made with service providers and communication initiated between providers and CRSA staff, providers were made aware of the purpose of the study and the CRSA became aware of some of the problems faced by service providers. Once the survey effort got underway, service providers showed exemplary cooperation in participating in the survey. The CRSA began notifying service providers on issues such as House Bill 440, that proposes the establishment of a recreation management plan for the area covered by the Bristol Bay Area plan, which includes the study area.

Improved communication has not alleviated the responsibility of the CRSA to make permit recommendations and conduct future planning in a manner that balances the various uses of CRSA resources or the fact that CRSA actions can impact commercial recreation uses and activities. However, it has indicated that both groups have some mutual concerns and can benefit by working together in the future.

COORDINATION

In a sense, service providers are both potential permit applicants and a constituent group that could provide input to the CRSA on consistency recommendations. Continued coordination is the best means of keeping channels of communication open between the CRSA and recreation service providers. For the purpose of coordination, the CRSA should either utilize existing service provider associations within the study area or work with providers to form a recreation provider working group. Once representation on the working group is finalized, two options for coordinating activities are recommended: keeping service providers informed of applicable permits before the CRSA Board for consistency review, and seeking provider input as appropriate during consistency review and future planning efforts.

Keeping Commercial Recreation Service Providers Informed

During the consistency review process, the CRSA board should consider notifying commercial service providers of any permits that could adversely impact commercial recreation activities and incorporate service provider concerns into the review. This could be done by either contacting the individual providers potentially affected or the recreation provider working group, depending on the

scale of the activity. Notification would also be provided of appropriate planning activities sponsored by either the CRSA, or other parties. In both cases, it would then be the responsibility of commercial recreation service providers to initiate participation in public comment or planning processes.

Seeking Input

In the second option, the CRSA seeks to more actively involve service providers in consistency review and planning activities. In addition to notifying service providers of applicable permits and planning activities, CRSA staff would also ask for input on the proposed action for consideration during the consistency recommendation process. Service provider input would be considered along with input from other affected parties in the area such as villages, private landowners such as Native corporations and commercial fishing groups. The CRSA would only be committed to reviewing input, and it is recommended that recreation service providers still comment on permit actions through existing public review processes.

Where planning activities are involved, CRSA staff would work with service providers to ensure their representation on planning teams, as appropriate with other interest groups in the region.

4.4 POLICY IMPLEMENTATION AND FUTURE PLANNING

CONSISTENCY REVIEW PROCESS

The information provided by this study can be used by the Bristol Bay CRSA in making consistency recommendations in the Nushagak and Mulchatna river watersheds.

Consistency of Recreation Activity Permits

The CRSA may eventually be faced with a consistency review of a permit for an activity associated with commercial recreation, such as construction of a new lodge. Data presented in this study will be useful in evaluating potential effects of recreation on other coastal resource uses and activities, and consistency with policies in the Bristol Bay CRSA Coastal Management Plan. With a better understanding of the distribution and characteristics of commercial recreation activities, the need for requesting additional data (with a potential delay in permit review) should be reduced. For example, the CRSA now knows more about potential numbers of clients, equipment used for access and types of waste disposal facilities. Similarly, the ability to work with service providers to agree on conditions that make proposed actions consistent with program policies will be enhanced.

Consistency of Other Permits with Recreation Activities

Certain types of activities subject to consistency review, such as placer mining and large scale logging operations, have potential adverse effects on recreation, subsistence, commercial fishing and other resource uses. Stipulations can be recommended in order to minimize detrimental impacts, particularly during the CRSA's consistency review of permit application.

PLANNING ACTIVITIES

A major study objective of the CRSA was to develop a database on recreation activities that could be used in future planning activities. Of particular concern is the management of recreation to maintain the quality of the resource and minimize conflicts with other uses and activities.

House Bill 440/Recreation Management Plan

Alaska House of Representatives Bill 440 (HB 440), introduced by Representative Adelheid Herrmann during the 1986 session, did not pass in the Senate. The bill would require preparation of a Recreation Management Plan for the geographic area contained within the Bristol Bay Area Plan. It implements a recommendation by the Bristol Bay Area Plan to prepare a recreation management plan.

The impetus to this bill is the observed growth of commercial and public recreation within the Bristol Bay Region, that could potentially result in degradation of the quality of recreation and increased conflicts with other resource users, particularly subsistence users. Passage of the bill was supported by the CRSA, communities within the CRSA and several commercial recreation service providers. One of the most important provisions of HB 440 is the deferral of development of permanent commercial recreation facilities until a management plan is adopted.

Both the Commercial Recreation Service Provider Directory and the data presented in this study would be useful in preparing the Recreation Management Plan. The directory would be useful in contacting commercial recreation service providers for participation in the planning process and any additional survey work that may be required for other portions of the region. If desirable, the survey could be used to obtain data on recreation characteristics from portions of the Bristol Bay region not addressed by this study. Finally the data from this study could be used to develop management guidelines for recreation activities in the Nushagak and Mulchatna River watersheds.

AMSA's and other Planning Activities

Most of the study applications discussed above could be used for other planning applications. If preparation of a recreation management plan is not feasible in the near term, the coastal management process of Area Meriting Special Attention (AMSA) designation could be used to develop policy guidance for recreation activities. Preparation of an AMSA plan for the Nushagak-Mulchatna river drainages would require assembling a planning team that, at a minimum, would include representatives of the following groups: CRSA board, affected villages, commercial recreation service providers and the Alaska Departments of Natural Resources and Fish and Game.

The AMSA process would likely evaluate all the resource uses taking place within the area, including subsistence and potential resource extraction. The plan would develop policy guidelines that could be implemented through coastal management consistency and potentially through Memoranda of Understanding with state permitting agencies.

The CRSA is also interested in more detailed data collection and planning for the study area to avoid potential conflicts over resource use. Maps of the area were prepared at a scale of 1:63,360 and village workshops have been discussed.

Information obtained from this study will be beneficial in determining the extent, and intensity, of recreational use in the Nushagak-Mulchatna river drainages. This will result in aiding governmental agencies in resolving both existing, and potential, conflicts between recreational activities and subsistence, commercial fishing and other resource uses.

APPENDIX A: DIRECTORY

5.1 METHODOLOGY

OBJECTIVE

To develop a directory of commercial recreation service providers currently operating on the Nushagak and Mulchatna River drainages. Such providers include air taxi, guide and lodge operations.

DIRECTORY COMPILATION

The development of an updated directory of recreation service providers using the Nushagak and Mulchatna River drainages involved the review of numerous primary and secondary data sources. Primary sources included personal contact with persons knowledgeable about existing operators in these drainages, while secondary sources entailed the review of both published and unpublished materials that revealed information about air, guide and lodge operators in and around the study area.

First, primary sources were contacted. They provided not only information about operators within the study area, but also other potentially valuable primary and secondary sources. Additional primary sources were subsequently contacted prior to all secondary sources. Next, secondary sources of information were reviewed for commercial service providers operating in the study area. (Lists of both primary and secondary sources follow.)

Finally, all potential commercial recreation providers in the study area were entered into a computer data base to create a draft directory. After the information was entered, a cross-check was run to eliminate any duplication of service provider records. (It should be noted, however, that where a contact person operated more than one service, a separate record for each service was entered into the data base. For instance, where the same contact person operated an air taxi and guide service with different business names, both business names were entered into the data base.)

After completing the draft directory, telephone contact was attempted with each recreation service provider listed in the data base. If reached, operators were asked if they had used the Nushagak or Mulchatna River drainages to provide recreation services during the 1985 or previous seasons. If so, the operator or contact person was given a brief description of the study and notified of the upcoming survey. Names of contact persons, winter and summer addresses, and phone numbers of the operator were verified. Operators that indicated they had either never used, or had not recently used, the Nushagak or Mulchatna drainages were deleted from the draft data base of service providers.

In some instances, current telephone numbers were not available for operators either from the original primary or secondary sources of information, or from other service providers. (Telephone books and information were checked as well.) In most of these cases, the operators' names and addresses were left on the directory so they could be sent mail questionnaires.

The survey questionnaire was developed and administered as either a face to face interview or mail out. A few mail surveys were returned non-deliverable and were deleted from the directory. Also many operators, upon reviewing the questionnaire, realized they did not operate in the study area and were also dropped from the directory. A few more names were added, however, as the survey respondents revealed new businesses.

The directory computer data base was updated to reflect the final information, including changes in names and addresses and a current directory was printed.

SOURCES

The following is a list of the primary and secondary sources used to compile the final recreation service provider directory. Primary sources are accompanied by brief descriptions. Secondary sources are listed in the order of their usefulness to the development of the final directory product.

Primary Sources

1. George Heim, Alaska Wilderness Guides Association, 1831 Kuskokwim, Anchorage, Alaska 99508. Alaska Wilderness Guides Association is a non-profit corporation that was created to provide business and operating skills, and medical and mountain rescue training to wilderness guides throughout Alaska. The association also assists guides in coordinating operations with various government agency regulations.
2. Ron Dalby, Alaska Magazine, 201 East 56th Avenue, Anchorage, Alaska 99502. Alaska Magazine compiles a brief listing of air taxi operators in Alaska through their list of advertising clients. Other information regarding operators on the Nushagak and Mulchatna River drainages was obtained through Ron Dalby's personal knowledge.
3. Hunter Fisher Taxidermists, 5306 Arctic Boulevard, Anchorage, Alaska 99503. Provided personal knowledge of guide, air taxi and lodge operators who operate in the study area.
4. Carole Guffy, The Fish Specialist, 3421 West 34th Avenue, Anchorage, Alaska 99503. Provided personal knowledge of guide and air taxi operators who might provide recreational services in the Nushagak and Mulchatna drainages.
5. Donna and Russ Redick, Directors of the Alaska Professional Sport Fishing Association, 3605 Arctic Boulevard, #800, Anchorage, Alaska 99503. As the head of the Alaska Professional Sport Fishing Association and through their own personal knowledge, the Redicks were able to provide several sources of information, as well as names and contact persons of air taxi, guide and lodge owners operating in the Nushagak and Mulchatna drainages.

The following sources also suggested secondary sources of information, in addition to providing their own directories of recreation service providers in the Nushagak/Mulchatna river drainage system.

6. Dan Hourihan, Wood-Tikchik State Park, Dillingham, Alaska

7. Alice Ruby, Choggiung Limited
8. Paul Haertel, Lake Clark National Park, National Park Service
9. Dave Morris, Katmai National Park, National Park Service
10. Dick Mylius, Alaska Department of Natural Resources, Division of Lands, Anchorage, Alaska
11. Eric Minard, Alaska Department of Fish and Game, Commercial Fishing Division, Dillingham, Alaska
12. Lew Gwartney, Alaska Department of Fish and Game, Sport Fishing Division, Dillingham, Alaska
13. Lee Hodgkiss, Togiak National Wildlife Refuge, U.S. Fish and Wildlife Service

Secondary Sources

1. List of Certified Air Taxi Operators, July 1985. The list of certified air taxi operators is an excellent, comprehensive directory published annually by the Federal Aviation Administration, Flight Standards Division in Anchorage, Alaska. The list gives information on the base of operation, name of business, address, rating held, area of operations and operating certification number.
2. Alaska Department of Commerce and Economic Development, Guide Licensing and Control Board, 1985 State of Alaska Guide Register. The Alaska Department of Commerce and Economic Development, Division of Tourism, provides an annually updated list of guides and the Game Management Units in which they operate. Since the Nushagak and Mulchatna River drainages fall within Game Management Unit Number 17, all operators licensed to operate in Unit 17 were included in the draft directory.
3. Alaska and Canada's Yukon Vacation Planner. Published annually by the Alaska Department of Commerce and Economic Development, the Vacation Planner is an excellent source of information on guides, air taxi operators and lodge owners throughout Alaska. Its directory of visitor services presented by intrastate air transportation, wilderness lodges and guide operations proved it to be especially useful in determining which commercial recreation providers operated in the Nushagak and Mulchatna River drainages.
4. U.S. Department of the Interior, National Park Service, Alaska Region. Comprehensive lists of guides, air taxi services and lodges authorized to provide visitor services in the Lake Clark and Katmai National Park and Preserve areas. Requirements for inclusion on the list include possession of a current Alaska State Business License and proof of adequate insurance. The information includes a breakdown of companies by type of service offered, with names, addresses and phone numbers.
5. U.S. Department of the Interior, Fish and Wildlife Service, Togiak National Wildlife Refuge. Annually updated list of guide and air taxi operators with

special use permits for the Togiak National Wildlife Refuge. Includes names of business, contact persons and addresses.

6. Alaska Department of Natural Resources, Division of Parks, Wood-Tikchik State Park. Comprehensive directory of permitted guides and lodge owners in Wood-Tikchik State Park. The list is a result of operators responding to advertisements requesting input for the Wood-Tikchik State Park Management Plan.
7. Alaskan Air Taxi Operators Registered Under 298. List of air taxi operators prepared by the U.S. Department of Transportation (formerly the Civil Aeronautics Board). The list is comprised of insured operators and is updated as new air taxi operators are registered.
8. Choggiung Limited 1985 Special Land Use Permits. List of permits granted by Choggiung Limited to recreational users of Portage Creek. Provider's names of businesses that received permits for the 1985 sport fishing season, addresses and contact names.
9. Alaska Department of Revenue, 1985 Business License File. Business license file was reviewed using the Standard Industrial Classifications (SIC) of the following:
 - a. Class 40 - Transportation by Air
Subclass 4521 - Air Taxi Operators, Non-certified and Flying Charter Service, Non-certified.
 - b. Class 70 - Hotels and Other Lodging Places
Subclass 7032 - Fishing Camps
 - c. Class 7999 - Fishing and Hunting Guides

The subclassifications were reviewed by city, which included Anchorage, Dillingham, Ekwok, Iliamna, King Salmon, Koliganek, Levelock, Nondalton, Newhalen, New Stuyahok, Pedro Bay and Port Alsworth.
10. Certificated Alaskan 401 Carriers. The Certificated Alaskan Carriers list is prepared by the U.S. Department of Transportation and is comprised of air taxi operations that are certified to perform scheduled flights between any two points in the United States. Carriers are added to the list as they become certified.

5.2 UPDATE AND MAINTENANCE

The compilation of the current directory was a relatively time-consuming task that revealed the fact that there is not one simple method available for keeping the directory up to date and current. One reason is that licensing or permits are not required for all operations in all regions of the study area. Also, there are many operations that are viable, but are secondary occupations for their owners. Many such businesses are not listed in the usual sources. Also, many operations rely on word of mouth and repeat clients for their business and do not advertise. Such businesses may not appear in any primary or secondary source either.

The use of a computer data base, however, would be effective for ease of maintenance. Up to date informatio, would be gleaned from surveying the primary and secondary sources listed as well as additional sources as they arise in the future. As the new listings become available and are entered, the computer data base would be used for cross-checking data and eliminating duplications. Yearly maintenance would be required at a minimum.

APPENDIX B: SURVEY INSTRUMENTS

6.1 SURVEY DEVELOPMENT METHODOLOGY

OBJECTIVE

The principal objective of the survey instrument was to gather comprehensive information on the characteristics of commercial recreation use in the Nushagak and Mulchatna River drainages.

SURVEY POPULATION

A directory of air taxi operations, guides, lodges and combinations of the first three, was developed for the study area and became the survey population. (Please refer to Appendix A for a more detailed discussion of the directory.)

TABLE 3-1*
POPULATION AND SAMPLE SIZE BY OPERATOR TYPE

Population

Total Number in Directory	185
Did Not Operate in Study Area	(48)
Returned Non-deliverable	<u>(10)</u>
Revised Population	127

Sample

Completed Face to Face	52
Completed Mail Surveys	20
Total Non-respondents	<u>(55)</u>
Total Respondents (Sample Size)	72
Proportion of Sample to Population	57%

Breakdown by Type of Respondent

	Population	Sample	% of Population
Air Taxi	42	24	57
Guide	47	22	47
Lodge	38	25	66

*Table 3-1 first appears in Section 3

QUESTIONNAIRE DESIGN

The design of the questionnaire was one of the most important phases of the study. The questionnaire had to be designed to ask the appropriate questions to solicit the desired information, yet it had to be readable, clearly understandable and the answers had to be given in a format that would enable computer tabulation for analysis. Additionally, three survey instruments would be needed to specifically address operators within the three categories (air taxis, guides and lodges).

A preliminary survey questionnaire prototype was designed that addressed aspects of commercial recreation service providers use. The questionnaire started with basic information such as the date, interviewer's name, the name and address of service provider and the purpose of the survey. The body of the questionnaire was divided into three parts as follows:

- Part 1
- 1) History of Operation
 - 2) Access to Operation
 - 3) Marketing and Advertising
 - 4) Client Profile
 - 5) Income, Expenses and Operational Costs
 - 6) Personnel
 - 7) Equipment

- Part 2
- Each question in Part Two asked for information on the following by location within six divisions of the study area:
- 1) Facility Type
 - 2) Facility Type and Client Capacity
 - 3) Water, Wastewater and Refuse Systems
 - 4) Fishing by Species
 - 5) Policy on Limits and Catch and Release by Species (not by location)
 - 6) Fishing by Species and Month
 - 7) Hunting by Species
 - 8) Hunting by Species and Month
 - 9) Other Activities Preferences
 - 10) Other Activities by Preference and Month

- Part 3
- Maps were provided with each questionnaire for mapping recreation service facilities and use areas.
- 1) Facilities and Access Areas
 - 2) Sport Fishing Areas (Regularly Utilized)
 - 3) Sport Hunting Areas (Regularly Utilized)
 - 4) Boat/Float Trip Areas

A base map of the study area was produced by combining information provided by the Bristol Bay Coastal Resource Service Area (CRSA) with U.S. Geological Survey mylar base maps provided by the Alaska Department of Natural Resources Bristol Bay Cooperative Management Program. The area encompassed the entire drainage area for both the Nushagak and Mulchatna Rivers and was divided into six sections. The six units, labeled A through F, divide both the rivers and the Wood-Tikchik State Park (part of the Nushagak River system) into lower and upper sections. The base map was used to produce a blue-line map of the study area and its subdivisions to accompany the questionnaire for answering Part 3.

The preliminary questionnaire was then reviewed by the CRSA and two agencies: the Alaska Department of Natural Resources and the Alaska Department of Fish and Game. Both agencies extensively reviewed the questionnaire, met with the planners and provided comprehensive written comments that resulted in both modifications and the addition of several questions to the questionnaire.

A pre-test was conducted simultaneously using two representatives from each user group to insure that the questionnaire was readily understood by the respondents, produced relevant results and trained the surveyors. To maintain an unaffected original sample, respondents were chosen that did not operate within the study area.

All comments provided by the CRSA and the state agencies were reviewed by the study team and incorporated within the questionnaire. Final adjustments were also made according to comments and concerns raised by the pre-test, including:

- A. Naming the three parts as follows:
 - Part One: General Characteristics
 - Part Two: Primary Resource and Equipment Use
 - Part Three: Mapping
- B. Adding two categories to the first part, called "Rates" and "Perceptions".
- C. Part Three categories were given letter symbols and were organized as follows:
 - 1) Facilities and Access Areas
 - 2) Regularly Used Sport Fish Areas
 - 3) Regularly Used Sport Hunting Areas
 - 4) Float Trip Areas
- D. Clarifying most of the questions to enhance response.

Next, the questionnaire was edited and simplified to reduce the overall length. The main body of the questions was then adapted to develop three separate questionnaires that specifically addressed the three user groups, although the same map would be used throughout. The final three questionnaires were subsequently approved for use by the CRSA.

6.2 SURVEY EXECUTION

The survey population was subdivided to execute the survey. Two groups of face to face candidates were identified that included operations headquartered in Anchorage and operations based in the Bristol Bay CRSA region. The consultant study team conducted face to face interviews in Anchorage and the CRSA staff interviewed the Bristol Bay operations. All other operations fell into the third group which became the mail survey sample. Anchorage and Bristol Bay operations that could not be reached by telephone also belonged to the mail survey sample. To insure uniformity, the same survey questionnaires were used for the face to face interviews as the mail survey. Both an introductory cover letter and brief summary of the survey purpose and objectives were included with each mail survey.

A list of commercial recreation providers headquartered in the Bristol Bay region and the appropriate number of survey questionnaires was sent to the CRSA for the staff to begin local interviews. Meanwhile, operators based in the Anchorage area were contacted and interview appointments were scheduled. (The length of the face to face interviews averaged approximately 45 minutes.) The remainder of the operators in the directory were sent mail surveys.

The survey execution process revealed new information. Many of the operators that could not be reached during the compilation of the original directory were reached at this point of the survey execution. Several of these operators indicated that they did not operate within the study area. Others had operated in the study area during previous years and were planning to in the future, but did not in 1985. Those people were also interviewed. Additionally, a few more businesses in the area were revealed and added to the directory and survey population.

Subsequent mail surveys were sent as calls to arrange interviews revealed that the operators could not be reached due to out-of-state winter headquarters, vacations or other reasons. Also, a few operators never responded to messages left either on their answering machines, or with their answering services, and thus were mailed surveys.

Another group of operators fell within the category of "returned, non-deliverable". Phone numbers were sought, but many did not have listings. This group remained unreachable.

Finally, calls were made to mail survey recipients that had not responded to inquire whether or not they had received the survey questionnaire, if they operated in the area and would they please respond. At this time, several indicated that once they looked at the questionnaire, they realized they did not operate within the study area. Others said they had not received the questionnaire and requested a new one which resulted in another mail out. Also a few never responded to the calls. There were a few individuals that refused to participate and there were also those that would not meet the interviewer, but most operators were friendly and cooperative.

The directory was finalized after all face to face interviews were completed and mail responses received.

6.3 BASIC SURVEY FORM

The questionnaire designed for the lodge operations formed the prototype survey questionnaire. The guide questionnaire differed only in question #25. The lodge questionnaire asked, "Do you contract out for your guide service?" Whereas, question #25 in the guide questionnaire read, "Do you sub-contract out for your guide service?" All other questions were identical between the two groups.

The air taxi questionnaire was substantially different from the other two. (This resulted from a pre-test finding indicating that air taxis could only provide limited detail on their recreation related activities.) It was shorter and less detailed as air taxi operators are more removed from the actual resources than either guides or lodge owners. Air taxis are the transportation means. Question #14 was simplified to only three primary activities: Fishing, Hunting and Boat/Raft Trip sought by clients (the comparable lodge and guide

question asked for the same information broken down by species and other activities). The greatest difference was in Part Two; the air taxi questionnaire did not include questions concerned with hunting and fishing.

A copy of the lodge survey questionnaire follows.

BRISTOL BAY COASTAL RESOURCE SERVICE AREA
COMMERCIAL RESOURCE USAGE SURVEY

DATE: _____

QUESTIONNAIRE # _____

INTERVIEWERS NAME: _____

NAME OF BUSINESS: _____

ADDRESS: _____

OWNER: _____

PERSON COMPLETING SURVEY: _____

PURPOSE

This survey is being conducted by the Bristol Bay Coastal Resource Service Area Board. Its members are elected by the residents of the Bristol Bay region to oversee implementation of the region's coastal management program. The survey is part of a study of lodges, guides and air taxi operators that provide commercial recreation services on the Mulchatna and Nushagak River drainages.

The purpose of the study is to collect information on the location, timing and other use characteristics of commercial recreation activities that occur along both river drainages, as well as information on the general economic characteristics of these activities. The information collected will be used to increase resource managers' understanding of the extent and importance of commercial recreation activities in the area for future management decisions.

The study area includes the mouth of the Nushagak River to its headwaters in the Nushagak Hills, 100 miles northeast of Dillingham; the tributaries of the Nushagak River, including the Mulchatna and Chilikadrotna Rivers and their headwaters; and the Wood-Tikchik Lakes State Recreation Area (see areas A through F on the enclosed study area map).

The survey is divided into three parts: 1) general operating characteristics, 2) where activities take place within the study area and 3) mapping activities.

INSTRUCTIONS

ALL OF YOUR RESPONSES WILL BE KEPT STRICTLY CONFIDENTIAL. YOU WILL NOT BE INDIVIDUALLY IDENTIFIED IN ANY REPORT OR PRESENTATION.

If you own more than one operation, please fill out a separate questionnaire for each operation. Unless otherwise directed, all questions should be answered for the 1985 calendar year. A map of the study area is enclosed; please refer to it as necessary to answer the questions.

Any additional questions you may have on either the questionnaire or the study should be directed to:

Jon Isaacs
Jon Isaacs and Associates
2418 Forest Park Drive
Anchorage, Alaska 99503
(907) 279-8900

PART ONE: GENERAL CHARACTERISTICS

HISTORY OF OPERATION

1. Which of the following best describes the type of operation you have?

1. Lodge
2. Air Taxi
3. Guide Service/Outfitters
4. Combination of 1 and 2
5. Combination of 2 and 3
6. Combination of 1 and 3
7. Combination of 1, 2 and 3
8. Don't Know
9. No Response

2. Is the business the sole or part-time occupation of the operator?

1. Sole
2. Part-time
8. Don't Know
9. No Response

2a. If the business is a part-time occupation, what is the operator's other occupation?

3. How many years has this operation been in business while under the current owner?

1. 1-2 years
2. 3-5 years
3. 6-10 years
4. 11-15 years
5. 16-20 years
6. More than 20 years
8. Don't Know
9. No Response

4. How many years has this operation been in business while under prior owners?

1. None
2. 1-2 years
3. 3-5 years
4. 6-10 years
5. 11-15 years
6. 16-20 years
7. More than 20 years
8. Don't Know
9. No Response

5. Please circle the months of the year your business was in operation in the area identified on the map as the study area (including preseason start-up and post season clean-up):

- | | | |
|-------------|--------------|-----------------|
| 1. January | 7. July | 13. All year |
| 2. February | 8. August | 88. Don't Know |
| 3. March | 9. September | 99. No Response |
| 4. April | 10. October | |
| 5. May | 11. November | |
| 6. June | 12. December | |

ACCESS TO OPERATION

6. What is the main means of access to your business operations?
 (Base camp is your primary facility in the study area; satellite camps include cabins and wall tent sites.)

	A. Plane	B. Boat	C. Road
1. Base Camp			
2. Satellite Camps			
3. Hunting Areas			
4. Fishing Areas			
5. Other:			

8. Don't Know
 9. No Response

MARKETING AND ADVERTISING

7. Which of the following media sources does your business use for advertising?

1. Magazines
 2. Newspaper
 3. Radio
 4. Television
 5. Brochures
 6. Other _____
 7. None
 8. Don't Know
 9. No Response

CLIENT PROFILE

8. How many clients did your business have during each month of 1985?
 (Estimate if necessary.)

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

9. Please estimate the average number of clients you had during the following years. (Mark N/A if you did not operate in a specific year.)

1984 _____
 1983 _____
 1982 _____
 1981 _____
 1980 _____

10. Please estimate the percentage of your clientele during the last five years that fell within the following residency categories:

	1985	1984	1983	1982	1981	1980
1. Bristol Bay region resident						
2. Alaskan resident outside Bristol Bay region						
3. Out of state, U.S. resident						
4. International						
8. Don't Know						
9. No Response						

1. Bristol Bay region resident
2. Alaskan resident
outside Bristol Bay region
3. Out of state, U.S. resident
4. International
8. Don't Know
9. No Response

11. Please estimate what percentage of your clientele during 1985 fell within the following age categories:

1. 0-17 _____%
2. 18-24 _____%
3. 25-34 _____%
4. 35-49 _____%
5. 50-64 _____%
6. 65+ _____%
8. Don't Know
9. No Response

12. During 1985, what percentage of your clientele were repeat clients?

1. _____%
8. Don't Know
9. No Response

13. Over the past several years, has the proportion of repeat clients to your business _____?

1. Increased
2. Decreased
3. Stayed the same
8. Don't Know
9. No Response

14. What is the primary activity sought by your clientele? Please rank (1st, 2nd, 3rd, etc.) the preference of your clientele for the following activities: (Leave blank if your clients did not participate in a particular activity.)

FISHING

- 1. Rainbow Trout _____
- 2. Arctic Char _____
- 3. King Salmon _____
- 4. Silver Salmon _____
- 5. Grayling _____
- 6. Northern Pike _____

OTHER ACTIVITIES

- 07. Moose Hunting _____
- 08. Brown Bear Hunting _____
- 09. Caribou Hunting _____
- 10. Guided Boat/Raft Trip _____
- 11. Unguided Boat/Raft Trip _____

- 88. Don't Know
- 99. No Response

RATES

15. What is your current (1985) rate per client for a typical package? (Please indicate unit of time; a seven day package, for example.)

- 1. \$ _____ per _____
- 8. Don't Know
- 9. No Response

16. Does the package include round trip transportation from Anchorage?

- 1. Yes
- 2. No
- 8. Don't Know
- 9. No Response

17. If not included in a standard package, what is the average cost per passenger for round trip transportation to your operation from Anchorage?

- 1. \$ _____
- 8. Don't Know
- 9. No Response

18. What other services, if any, does your lodge offer and how much do they cost? (Include units, such as per day or per hour, etc.)

SERVICE	FEE
1. _____	\$ _____
2. _____	\$ _____
3. _____	\$ _____
4. _____	\$ _____
5. _____	\$ _____

- 6. None
- 8. Don't Know
- 9. No Response

INCOME, EXPENSES AND OPERATIONAL COSTS

We are going to ask a few questions on the financial characteristics of your operation. This information will be kept STRICTLY CONFIDENTIAL; it will be used only to prepare a general economic profile of the commercial recreation industry in the study area.

19. What is the range of your estimated gross income from your business operation for 1985?

- 1. \$0-5,000
- 2. \$5,100-20,000
- 3. \$21,000-30,000
- 4. \$31,000-50,000
- 5. \$51,000-75,000
- 6. \$76,000-100,000
- 7. \$101,000-200,000
- 8. \$201,000-300,000
- 9. \$301,000-400,000
- 10. \$401,000-500,000
- 11. \$501,000-1,000,000
- 12. Over \$1,001,000
- 88. Don't Know
- 99. No Response

20. Over the past several years, has the gross income from your business tended to _____?

- 1. Increase
- 2. Decrease
- 3. Stay the same
- 8. Don't Know
- 9. No Response

21. What is the range of your estimated total business expenses for the 1985 season?

- | | |
|----------------------|-------------------------|
| 1. \$0-5,000 | 8. \$201,000-300,000 |
| 2. \$5,100-20,000 | 9. \$301,000-400,000 |
| 3. \$21,000-30,000 | 10. \$401,000-500,000 |
| 4. \$31,000-50,000 | 11. \$501,000-1,000,000 |
| 5. \$51,000-75,000 | 12. Over \$1,001,000 |
| 6. \$76,000-100,000 | 88. Don't Know |
| 7. \$101,000-200,000 | 99. No Response |

22. Over the past several years, have your business expenses tended to _____?

1. Increase
2. Decrease
3. Stay the same
8. Don't Know
9. No Response

23. Please estimate what percentage of your gross business income during 1985 can be attributed to activities and operations in the study area?

1. _____%
8. Don't Know
9. No Response

24. Please estimate what percentage of your gross income from the 1985 season was spent in the study area?

1. _____%
8. Don't Know
9. No Response

PERSONNEL

25. Do you contract out for your guide service?

1. Yes
2. No
8. Don't Know
9. No Response

26. What is the average guide to client ratio?

1. Number of Guides _____: _____ Number of Clients
8. Don't Know
9. No Response

27. For the following chart please indicate how many people you employed for each of the listed positions in the months designated:

1. Guides
2. Pilots
3. Cooks
4. Maintenance
5. Management/Marketing

#	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1.												
2.												
3.												
4.												
5.												

8. Don't Know
9. No Response

28. What is the average monthly salary for each of the following positions in your business operation?

1. Guides \$ _____/month
2. Pilots \$ _____/month
3. Cooks \$ _____/month
4. Maintenance \$ _____/month
5. Management/Marketing \$ _____/month
6. Other _____ \$ _____/month
8. Don't Know
9. No Response

29. What is the total number of local employees you hired from the study area during each month of the 1985 season?

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

8. Don't Know
9. No Response