THE ADMINISTRATIVE CONTEXT OF SOCIAL SCIENCE IN ALASKAN NPS UNITS AND A CRITICAL REVIEW OF EXISTING SOCIAL SCIENCE RESEARCH

GROUNDWORK FOR THE DEVELOPMENT OF AN ALASKA REGION SOCIAL SCIENCE RESEARCH PLAN

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A NOTE TO READERS

In its size and complexity, this document reflects the characteristics of both the administrative context of social science in Alaska and the existing research conducted in Alaskan NPS units. Thus, readers with limited time may wish to skim some portions. Chapter II is not well suited to summary. However, readers familiar with the Alaska National Interest Land Conservation Act (ANILCA) might skip section 2.2.1. Chapter III is dominated by sections 1.3.1 to 1.3.8 that describe the wide range of existing research. Each of those sections ends with a *Summary and Avenues for Future Research.* Readers can find and read those portions of the literature review to gain a quick summary of the existing research.

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I. INTRODUCTION

> *Proper management of the National Park System requires accurate, science-based understanding of the relationships between people and parks in order to protect park resources unimpaired and provide for public enjoyment. Social science research in support of the National Park Service (NPS) mission is an important function that provides new and helpful information upon which to base management decisions.*
>
> *National Park Service Director's Order #78*

The sixteen Alaskan units of the National Park System contain almost seventy percent of the total acreage in the U.S. NPS (about 55 million out of 81 million acres, NPS Statistical Abstract 1999). In July of 2001, those units were managed by 450 full time employees and a nearly equal number of full time temporary seasonal workers (Callaway 2004). Alaskan NPS units serve a variety of purposes and constituencies including a) the protection of wildlife and habitat, b) the protection and interpretation of historical sites, archeological sites, geologic features, and volcanic activity, and c) to provide for recreation and environmental education (Callaway 2004). The range of management purposes is particularly broad in those units established by the Alaska National Interest Lands Conservation Act (ANILCA; P.L. 96-487) that, "…mandates preserving unrivaled cultural scenic and geological values, wildlife populations and habitat, unaltered ecosystems, wilderness values and recreational visitor use, opportunities for scientific research in undisturbed ecosystems, and providing opportunities for subsistence use of resources." (Callaway 2004).

Like the National Park System (NPS) as a whole, the system of Alaskan NPS units is clearly large and complex enough to require science-based information if managers are to make effective decisions concerning visitors and other human users of NPS units. Accordingly, social science has become an important management tool, recognized and guided by regulations such as the director's order quoted above. Like most management tools, social science is most effective when guided by an assessment that sets research priorities and identifies needs for technical assistance. In the Alaska region of the NPS, a social science research plan is being developed to provide such an assessment. It seeks to

maximize the contribution of social science in helping Alaskan NPS managers make effective policy decisions.

A social science research program (and the plan that is intended to guide it) is particularly important in Alaska. Most Alaskan NPS units are less than 25 years old and many aspects of their use and management have not evolved into static patterns. In such an open atmosphere, solid information about NPS users can play a particularly influential role.

Alaskan NPS units represent an opportunity for social science but also present considerable challenges. For example, many units are located in remote areas where the logistics of research are difficult. Also, it is difficult to study users of units like Gates of the Arctic and Wrangell-St. Elias, because there are few of them and they are widely dispersed. Finally, there is a history of contentious relationships between the NPS and some local populations that can complicate both, a) studies of those local people, and b) studies that depend on the cooperation of local people (e.g., commercial operators) if they are to successfully contact other visitors. Because Alaskan social science is often difficult and expensive, a research plan that carefully assesses research priorities is particularly important.

This document serves to support the development of a social science research plan for the Alaska region of the NPS. It will: 1) describe the administrative context of social science in the region by reviewing legislation, guidelines, and policies that dictate or influence social science and the way the research is conducted, and 2) review the social science research that has been conducted in Alaskan NPS units. Each of these two distinct goals is addressed in a separate section below.

II. THE ADMINISTRATIVE CONTEXT OF SOCIAL SCIENCE IN THE ALASKA REGION

1. General NPS Legislation, Guidelines, and Policies Relevant to Social Science

An implicit need for social science in the management of all NPS units was present from their origin. The NPS Organic Act of 1916 mandates that NPS units provide for the enjoyment of their resources by visitors. In a basic sense, managers conduct social science whenever they systematically measure visitor enjoyment. However, social science is currently applied in ways stretching far beyond this simple example.

The motivation for almost all the social science studies conducted by the NPS can be traced to the dual mandate in the Organic Act. However, the tracing for a given study may be direct or circuitous. Some studies are directly motivated by managers' desire to balance resource preservation and visitor enjoyment. For example, studies of noncompliant off-trail hiking at Mount Rainier (XXCitation) were intended to help managers select the least intrusive or controversial management actions that would protect biological resources from trampling. On the other hand, studies measuring the human use levels that visitors felt was acceptable (Xxcitation) trace their relationship to the Organic Act through regulations specifying that NPS units will write management plans, and legislation requiring that general management plans address carrying capacity. Several of the specific regulations or policies that motivate social science across the NPS are discussed in this section.

1.1 General Calls for Social Science

A general impetus for social science arises from several sources. Although it is not specific to social science, a broad mandate to collect scientific information is present in the National Parks Omnibus Management Act of 1998 (P.L. 105-391, Sec. 202; 16 U.S.C. 5932). It requires that the management of units of the NPS be enhanced by the availability and utilization of a broad program of the highest quality science and information. NPS Directors Order #78 (NPS Xxcitation) calls specifically for parks to obtain and utilize social science information, and also sets out guidelines for the conduct of social science research. However, it does not provide detail concerning the research topics that should receive attention.

1.2 Social Science in NPS Planning

A variety of needs for social science information has also become apparent as managers have been called upon to write sophisticated management plans. Director's Order #2 (Xxcitation) dictates that NPS units will undertake a variety of planning efforts ranging from general management plans to more specific documents such as transportation management plans and site management plans.[1] The director's order does not directly specify that social science should be conducted, but in combination with other guidelines, it has motivated considerable social science research. Four examples of such additional guidelines are discussed below.

1.2.1 NEPA, Planning, and Social Science

The National Environmental Policy Act of 1969 (NEPA; CitationXX) motivates considerable social science research. NEPA requires that an environmental impact statement (EIS) or environmental assessment (EA) be written to describe probable impacts when the NPS (or any other governmental agency) takes significant action. Thus, 1) DO #2 requires that NPS managers periodically write management plans; 2) NEPA requires that an EIS or EA be written in conjunction with each plan; and 3) writing an adequate EIS or EA often requires information best provided by social science. For example, assessing the impact of removing a campground might require studies to measure the number of campground users and the importance of the camping experience in determining visitor satisfaction.

NEPA can also serve as a direct motivation for studies that assess the probable economic impact of NPS actions on surrounding communities. Such studies differ from the other examples of social science discussed to this point because their purpose does not arise directly from the mandate to provide for visitor enjoyment. Other studies of groups with economic interests in NPS units and their management may also be unrelated to NEPA. Research of this type is usually motivated by managers' desire to foster positive relations with local interest groups. Several official policies that support such efforts are listed

[1] The more specific plans are collectively referred to as implementation plans.

under "Cooperation and consultation" in the index of the 2001 NPS management policies (XXCitation).

Finally, NEPA requirements for public input into the EIS and EA process sometimes motivate social science. Although public feedback is usually solicited in the form of meetings or opportunities for mailed or emailed comments, surveys of particular user populations can also be used. When conducted properly, such surveys can be very useful because their results represent the views of the entire sampled population rather than the views of only those persons who are sufficiently motivated to attend meetings or write comments.

1.2.2 Carrying Capacity, User Capacity, and Social Science

Moving back to studies of recreational NPS visitors, much of the recent research focused on crowding and other issues related to use levels has been motivated by the General Authorities Act of 1978 (U.S. Public Law 95-625) and, to a lesser extent, by the Wild and Scenic Rivers Act (U.S. Public Law 90-542). The General Authorities Act requires that general management plans include "identification of implementation commitments for visitor carrying capacities for all areas of the unit",[2] and the Wild and Scenic Rivers Act states that their management plans will, "…address resource protection, development of lands and facilities, *user capacities*, and other management practices necessary or desirable to achieve the purposes of this Act." (italics added). Whether called carrying capacities or user capacities, such judgments quantitative and specific by nature. Thus, management decisions about those capacities depend upon a range of detailed information about visitors that are provided through social science. Much of the social science surrounding the application of planning frameworks to management planning can be traced to the requirements to address capacities.

The planning frameworks that are intended to help managers write good plans that address visitor capacities also form an important part of the administrative context of social science in the NPS. These frameworks, such as Limits of Acceptable Change

[2] Additional National Park Service policies also state that GMPs will address carrying capacity.

(LAC; Xxcitation) and Visitor Experience and Resource Protection (VERP; Xxcitation), are not written into the regulations related to social science. Nonetheless, they are being applied in a growing number of NPS units and their use motivates particular types of social science studies. Two basic concepts common to most of these frameworks are *indicators* and *standards*. Indicators are aspects of the environment that measured to determine the impact resulting from recreational use. For example, a useful indicator for hiking trails might be the average width of the denuded trail area. For each indicator, the frameworks require that managers specify a standard that sets a level at which management action will be taken to mitigate impacts of visitation. For example, the standard for the hiking trail example might specify that managers must take action if the average denuded width exceeds one meter. The process of selecting indicators and setting of standards calls for information from a variety of social science research. In particular, detailed data about visitor use levels, as well as their geographic and temporal distribution is crucial in determining if an indicator is strongly related to visitation. Also, information about the type and extent of the impacts that visitors' have on each others' trips are invaluable in selecting indicators and setting standards that protect visitor experiences.

1.2.3 Social Science and the Park Planning Program Standards

As part of the general effort to implement DO #2, NPS has developed official park planning program standards to define the desired process of management planning and the necessary content for an adequate management plan. After a recent revision, these standards now call for a foundation statement as a prerequisite for planning and decision making. This foundation statement is to include an analysis of the optimum and existing state of a variety of resources including factors such as "experiences". Such analyses implicitly require that a variety of social science information will be collected before management plans can be written (NPS, http://www.planning.nps.gov/document/aug9final%20standards%2Epdf).

1.2.4 Social Science and the Administrative Procedures Act

Another very broad guideline that acts in conjunction with DO #2 to motivate social science is the Administrative Procedures Act (APA; XXreference). By using social science to inform management decisions (including decisions made during planning efforts) NPS managers implicitly (and sometime explicitly) seek to preempt or refute charges that rules governing NPS users fail to satisfy the APA because they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."

1.3 Wilderness and Alaskan Social Science

The management of areas designated as wilderness is a prominent issue for many Alaskan NPS managers. Almost 42 percent of all US wilderness lands are located in Alaskan NPS units (44/105.7 million acres), as are the seven of the eight largest wilderness areas in the NPS (XXCitation for website). The Wilderness Act of 1964 (Public Law 88-577) lists several defining characteristics of wilderness, one of which states, an area of wilderness, "has outstanding opportunities for solitude…" This characteristic has been a primary motivating factor for social science in wilderness because "solitude" is often defined in ways that are difficult or impossible to measure without asking questions of the visitors who experience it (or the lack thereof). For example, when solitude is defined as the number of encounters between visitors, survey techniques have usually been used to ask visitors how many encounters they had (XXCitation – Womble?). Also, when solitude is defined as a more subjective feeling of being alone, social science techniques have been used to investigate the prevalence of that feeling and its relationship with the number of visitors who are present (Xxcitation).

Solitude plays a central role in the largest wilderness units, particularly in Gates of the Arctic National Park (GAAR). The statement of park purposes in the establishing legislation of GAAR begins, "To maintain the wild and undeveloped character of the area, including opportunities for visitors to experience solitude…" (94 Stat. 2371; 16 USC 3101; Public Law 96-487). Further, the legislative history of the establishing legislation states, "The National Park Service should conduct thorough studies, with public input, to determine the extent that visitation and development can occur within the area, within the limits of the wilderness resource." (Senate Report 96-413 p. 143).

Although GAAR is the only NPS unit that explicitly includes solitude in its purposes, several Alaskan NPS wildernesses are so large and remote that they provide a similar mix of opportunity and challenge to managers. Standards of solitude might be set higher for Alaskan wilderness than for the rest of the NPS, but the low numbers of visitors and vast geographic spaces often make it logistically difficult and costly to a) conduct research to inform the process of setting standards, and to b) determine if selected standards are met.

Nonetheless, social science is a useful, and sometimes mandated, source of information for managers seeking to provide quality wilderness experiences.

2. Cultural Anthropology, Ethnography, Cultural Resources, and Subsistence Use: Special Needs for Integrated Social Science in Alaskan NPS Units

2.1 The Separation Between Social Science in Cultural Resources and Other Divisions

The organizational structure of the NPS includes a separate division to manage cultural resources. This separation extends to the social science conducted by that division, and has been formalized in Director's Order #78. Below is the last entry in a list of social science disciplines that are briefly described in the Director's Order. All the disciplines listed above this entry are covered by the order.

> *Archeology and cultural anthropology/ethnography are social sciences under the management of the Associate Director for Cultural Resources and are not covered by this Director's Order. Both respond to legislative and policy mandates for data that culturally informs management and planning decisions. Archeology focuses on historic and prehistoric peoples and their resource uses. Cultural anthropology/ethnography focuses on relationships between park resources and present-day peoples with traditional associations to them. Cooperating with park-associated peoples, including Native Americans, African Americans and Hispanic communities, ethnography identifies traditionally valued places and the uses and meanings people assign to cultural and natural resources. See Management Policies, especially Chapters 1, 2, 5, and 8, Director's Order 28, and Chapters 6 and 10 of the Cultural Resources Management Guideline (NPS-28) for additional assistance.*
>
> *National Park Service Director's Order #78*

One of the primary differences between the social science related to cultural resources and other social science conducted by the NPS is that cultural resources research focuses on peoples whose lifeways are traditionally associated with NPS resources (see Cultural Resources Management Guideline [NPS-28]). Almost all the research motivated by the other policies focuses on recreational visitors, and the exceptions tend to be studies of local groups with economic rather than cultural ties to protected areas.

Following the example of Director's Order #78, recent social science plans have included little or no discussion of ethnographic studies (e.g., Machlis, McKendry, and Correia 1996). Despite such precedents, special features of many Alaskan NPS units and their administrative requirements place particular emphasis on understanding the uses made by local residents. Thus, a categorical exclusion of cultural anthropology and ethnography studies would substantially limit the usefulness of the Alaska region social science plan.

2.2 Local Populations with Traditional Uses Alter the Social Science Emphasis in Alaskan NPS Units

One of the characteristics that sets Alaskan NPS units apart from NPS units elsewhere is that Native American populations were not removed from the land by disease or military actions (XXCite Inhabited wilderness). The presence of rural Native Americans (and some non-Native Americans) had a major influence on the Alaska National Interest Land Conservation Act (ANILCA) that established many of the Alaskan NPS units, and has created a unique administrative context for social science in those units, particularly for studies associated with subsistence use and cultural resource management.

2.2.1 Social Science and the Alaska National Interest Lands Conservation Act (ANILCA)

ANILCA was written with the understanding that Alaska's rural economy and culture were unique and were to be protected. It is a complex act that has a variety of implications for social science. Later we will discuss these implications in some detail, but first it is useful to understand some aspects of subsistence use and its significance for NPS management.

Alaska's Rural Mixed Subsistence-Market Economies[3]

Alaska rural remote communities can be characterized as having "mixed subsistence-market economies." Use of this term recognizes:

> ... that there exists a 'subsistence sector' to the community's economy and social life, and a 'market sector,' and that the socioeconomic system [as a whole] is viable because the sectors are complementary and mutually supportive (Wolfe 1983:252-253).

Even households that harvest wildlife and other natural resources in a very traditional sense use modern equipment such as snowmachines, boats, traps, motors, and firearms. Equipment requires maintenance, motorized vehicles use fuel and oil, and firearms use ammunition, all of which are purchased. Accordingly, households that harvest substantial amounts of local foods must also generate cash to purchase necessary equipment and

[3] These three sections are adapted from Vande Kamp, Johnson, and Manning, 2001.

supplies. This mix of cash income and locally harvested resources combine to form the economy of most of rural Alaska.

In an average year, approximately 44 million pounds of wild foods are consumed in rural Alaska, or about a pound a day per person. Harvests of wild foods contain more than100 percent of the daily minimum protein requirements of the rural population and about 35 percent of the caloric requirements. If this food is valued at $3 to $5 per pound the replacement value is between $131 and $218 million annually (Wolfe 1998). Especially in isolated communities, locally harvested food may be more reliable than wage employment. Thus, local food is an economic safety net that many families, even those who typically import foods, depend on during economic downturns (Sumida and Anderson 1990). Subsistence harvests that are shared are also a form of security for those who are unable to fish or hunt—especially in Native communities.

Food is not the only subsistence use of wild resources. Other uses of subsistence products include:

Fuel: Wood is a major source of energy in rural homes, and is used for smoking and preserving fish and meat.

Transportation: Fish and (to a lesser extent) other meats are still used by a few people to feed dog teams.

Construction: Spruce, birch, hemlock, willow, and cottonwood are used to build such things as houses, shelters, sleds, and fish racks.

Home goods: Hides are used as sleeping mats and wild grasses are made into baskets and mats.

Ceremony: Traditional products are used in funerals, potlatches, marriages, and community gatherings.

Art and crafts: Grass, wood, skins, and furs are crafted into items for use, appreciation, and sale.

Sale for cash: Furs may be taken and sold for cash to obtain equipment and to otherwise supplement subsistence lifeways.

Nowhere in the United States do so many rural people have such a dependence on wildlife and other natural resources for direct consumption.

Subsistence Activities are Culturally Important[3]

The harvest, sharing, preparation and consumption of wild resources are also a distinctive part of rural Alaska culture and important in maintaining viable social structures, especially for Native Americans. An Alaska Department of Fish and Game (1992) report validates the cultural as well as economic importance of subsistence:

> Without subsistence, many rural Alaska communities might become wholly dependent upon transfer payments from the government. Such increased dependencies probably would be associated with increased rates of social pathologies such as chronic substance abuse, domestic violence, suicides, homicides, accidents, and destructive anomie.[4]

Rural communities may attempt to diminish these impacts by continuing traditional ways of living, which include subsistence fishing, hunting, trapping, and gathering (Wolfe and Bosworth 1990). Alaskan Natives frequently argue that without traditional subsistence activities, they would cease to exist as culturally distinct peoples (Berger 1985). Indeed, for "hunting-gathering peoples, all food species represent symbolically the particular places where they are harvested, and such places are elements of a sacred landscape" (Hunn et al. 1999). The harvest of local foods links Native people to the land, and to ancestors who sustained themselves similarly. As such, these harvests represent a spiritual connection to the earth and all living things. The taking and distribution of local natural resources also creates and reinforces social bonds within extended families and entire villages. Being on the land with older men is particularly a relevant opportunity for socialization of younger males.

[4] Anomie is a social condition characterized by the breakdown of norms governing social interaction (Abercrombie et. al, 1994). Its use in this quote apparently refers to a possible social condition in which rural community values and norms would continue to stress individual responsibility for providing food and sustenance to one's family but without any real opportunity to do so. This dysfunctional condition of the social structure is anomie and would be expected to lead to pathological individual and group outcomes. See also Merton, 1957.

Reinforcing the socio-cultural importance of subsistence activities Johnson et al. (1999) state the following while commenting on the potential loss of trapping opportunities in the North Additions of Denali National Park and Preserve (DENA):

> Loss of opportunities to take young people on traplines has greater implications than impacts associated with family finances (Wolfe 1991). In addition to contributions to household finances, trapping offers important opportunities for socialization of young people—especially males. Trapping gets young people on the land where they not only learn survival techniques but the entire ensemble of knowledge and skills that are associated with traditional rural living. It therefore has implications for interpersonal bonding between family members, formation of individual perspectives on subsistence lifeways by children, and ultimately for decisions to continue trapping as a subsistence activity and for the evolving character of local community and culture.

Many Non-Native rural Alaska households pursue a vanishing American way of life characterized by substantial subsistence harvests of wild resources, rugged individualism and self-reliance. Among those who practice this lifeway for very long, significant sharing of natural resource harvests within a larger social group also tends to emerge (Callaway 1995). There is little question that these activities and traits are core elements of local rural Non-native subcultures and, therefore, important to community definition and individual identity.

ANILCA Breaks With the Dominant Model of NPS Management[3]

With the exception of Kenai Fjords National Park and lands added to what is now Katmai National Park, all National Park System units established by ANILCA, and lands added to existing NPS units allow subsistence uses. Thus, they are legislatively different from their counterparts outside Alaska.[5] In 1980, the ideal goal of NPS natural resource management in the lower 48 states was often (albeit simplistically) stated as restoring NPS units as vignettes of primitive (i.e., pre-Columbian) America. Realistically, this goal meant vignettes of primitive America that included whatever impact occurred from "non-consumptive" public enjoyment and excluded impacts of consumptive use by Native Americans that had thousands of years of history. Known as the Yellowstone model of

[5] Exceptions are Hawaii Volcanoes National Park and the Big Cypress National Preserve where certain types of subsistence activities have been continued.

NPS management, this perspective is oriented toward nature protection and non-consumptive recreation as primary goals of NPS management.6

Wilderness areas are defined as inherently uninhabited in the Yellowstone model—places which are imagined ideally to have evolved apart from human history (Stevens 1997). Outside designated Wilderness, in adjacent frontcountry areas, tourism, and its associated development (e.g., paved roads in limited access corridors, lodges, restaurants, large visitor center, parking lots, and trinket shops) are acceptable. For example, in the old part of Denali National Park there is a developed zone with modern facilities and a wide gravel road that provides an access corridor over fifty miles in length for thousands of tourists who are transported by mass transit (buses). Extensive systems of hiking trails are also frequently constructed—especially in NPS managed Wilderness areas outside of Alaska. Recreational fishing is typically allowed but most traditional consumptive uses by local people are banned—especially taking of wildlife by hunting or trapping.

Congress's vision for ANILCA units of the National Park System and for lands added to existing Alaskan NPS units including Wilderness, is unlike the Yellowstone model in several respects. Rather than using the power of the federal government to eliminate consumptive uses by rural residents, including Native Americans who had occupied these lands for thousands of years, Congress assumed that continued "customary and traditional" uses by local rural residents do not represent inherent contradictions with the concepts of "national park," "national park wilderness", "national preserve wilderness," "natural and healthy" wildlife populations within national parks and "healthy" populations of wildlife in national preserves.

Within limits of reasonable regulation, an argument from ANILCA legislative history can be made that "customary and traditional" subsistence activities by rural residents can be appropriately conceptualized as "natural" components of ecosystems in NPS units. Consider, for example the following statement from the congressional record, “The

[6] Recreationists who regularly use natural national parks managed under the Yellowstone model characteristically have urban residences and are more likely to be drawn from highly educated white collar segments of society. Compared to the society at large they are disproportionately white.

National Park Service recognizes and the Committee agrees, that subsistence uses by local rural residents have been, and are now, a natural part of the ecosystem serving as a primary consumer in the food chain..." (Udall, Congressional Record – House: 11/12/80). Conceptualizing subsistence users as part of the ecosystem represents a clear break from the Yellowstone model. However, the parallels between management of wildlife and subsistence users are very limited. Like other human uses, subsistence activities are directly managed.

ANILCA Establishes Cooperative Management of Subsistence

ANILCA not only provides for the continuation of subsistence uses, it establishes an administrative arrangement institutionalizing a means for rural residents to interact with management of affected public lands insofar as these subsistence uses are affected. Section 801 of ANILCA declares:

> ...the national interest in the proper regulation, protection, and conservation of fish and wildlife on the public lands in Alaska and the continuation of the opportunity for subsistence way of life by residents of rural Alaska require that an administrative structure be established for the purpose of enabling rural residents who have personal knowledge of local conditions and requirements to have a meaningful role in the management of fish and wildlife and of subsistence uses on the public lands in Alaska.

On lands designated as National Parks and Monuments within which subsistence uses occur, Section 808 of ANILCA established Subsistence Resources Commissions (SRCs). These commissions are composed of people who either engage in subsistence uses in the area or have special knowledge thereof. They have responsibilities for submitting subsistence hunting plans and can legally make recommendations directly to the Secretary of the Interior. In practice, considerable time since these commissions were established in 1984 has been spent in dealing with issues of eligibility for subsistence uses, access technology issues (e.g., ATVs) and other issues such as determining areas where subsistence uses are considered traditional (Caulfield 1988, 1992).

Section 805 of ANILCA also established Regional Advisory Councils composed of residents of six regions (now expanded to eight) which have responsibility for reviewing proposals for regulations, policies and other matters relating to subsistence uses of fish and wildlife on federal lands in the region. These Councils provide a forum for the discussion and expressions of opinion on any matter related to subsistence uses within the regions. They recommend regulations and management strategies to the Federal Subsistence Board made up of high level representatives from the federal land management agencies who have final responsibility in adopting regulations.

The Regional Advisory Councils were not established until 1993 after the Federal Government took over management of subsistence. These advisory councils appear to be working and their recommendations carry considerable weight. In fact, the Federal Board must follow Regional Advisory Council recommendations unless those recommendations meet one or more of the following three conditions: (1) they are not supported by substantial evidence; (2) they violate recognized principles of fish and wildlife conservation; or (3) they would be detrimental to the satisfaction of subsistence needs.[7] The involvement of these councils protects the interests of rural communities and the participation of hunters on the councils introduces considerable on-the-ground knowledge to wildlife management discussions.

Subsistence management within NPS now appears to be moving away from rigid top-down formulaic management by regulations and increasingly associated with

[7] These criteria are from the Federal Subsistence Management Operations Manual.

institutionalized cooperative management involving the Federal Regional Advisory Councils and Subsistence Resource Commissions. This administrative evolution will likely culminate in more local involvement in interpretation of regulations and administrative processes that potentially limit or constrain local use of natural resources. This linkage, established by law and supported by the previously cited legislative history is unique. Nowhere else in the national park system do we have legally mandated procedures designed to institutionalize opportunities for local rural communities to influence federal natural resource management decisions of crucial importance to those communities.

Mandated Subsistence Research

Title 8 of ANILCA states, "The Secretary, in cooperation with the State and other appropriate Federal agencies, shall undertake research on fish and wildlife and subsistence uses on the public lands…" Thus, NPS managers of ANILCA lands have a mandated responsibility to conduct social science studies of subsistence. However, the law is unclear concerning the specific purposes for conducting the research or the way in which research findings are to be applied.

To date, social science information has been applied to a variety of management issues, most of which revolve around description of "customary and traditional" uses. Some such studies have been used to inform decisions about the allocation of subsistence privileges to particular communities, but more studies have been used to simply describe the range of uses and extent of harvest so that managers know the scope of their management issues. Such studies of subsistence harvests have been used to assess the likely impacts on biological resources, and have sometimes been used to justify changes in hunting regulations. Research findings describing wide-ranging aspects of subsistence use sometimes have implications that are more significant than might first be expected. For example, studies describing the way subsistence resources are distributed in native

communities have found that some individuals harvest disproportionately and share those resources widely in the community (XXCallaway in Johnson and Peterson). In such situations, standard rationing techniques based on individual harvest licenses and bag limits will impinge upon traditional practice.

Social Science Integrating Traditional and Recreational Uses

The basic description of all subsistence uses in Alaskan NPS units is far from complete (XXCite Callaway). Nonetheless, there are significant needs for at least one other type of social science information regarding subsistence use. Despite the historic separation between traditional and recreational use in the NPS, managers are confronted with a reality in which those uses and their management are not separate, and the managers must devise policies to balance the diverse mandates and regulations that apply to the different uses. The need for social science information would be particularly pressing when there are ideological and/or practical conflicts between traditional and recreational users. For example, subsistence users sometimes use ORVs to transport subsistence resources. Recreational users might have objections to such use based on philosophical grounds or annoyance due to hearing the mechanical sounds. On the other hand, subsistence users might be philosophically opposed to the catch-and-release practices of recreational anglers or be concerned about competition for the best fishing sites. Social science research could be used to measure the extent of such conflicts and to describe their underlying bases. Without such information, balanced management of multiple uses would be hit or miss at best.

Earlier we discussed how the planning of management policy (and guidance of the associated social science) has been affected by planning frameworks such as VERP and LAC. The application of such frameworks to NPS units created by ANILCA is complicated by a variety of factors including, a) uncertainty about the legal priority of traditional and recreational use, and b) the difficulty of moving from a two-dimensional to three-dimensional conception of management options (see Vande Kamp, Johnson, and Manning 2001). As a result, there is currently no standard approach to the integrated management of traditional and recreational use. Accordingly, there are no standard

guidelines for social science research programs useful for managers of ANILCA NPS units.

2.2.2 Alaska and the Administrative Context of Cultural Resource Management

> *Certain contemporary native American and other communities are permitted by law, regulation, or policy to pursue customary religious, subsistence, and other cultural uses of park resources with which they are traditionally associated. Such continuing use is often essential to the survival of family, community, or regional cultural systems, including patterns of belief and economic and religious life. Recognizing that its resource protection mandate affects this human use and cultural context of park resources, the National Park Service will plan and execute programs in ways that safeguard cultural and natural resources while reflecting informed concern for the contemporary peoples and cultures traditionally associated with them.*
>
> *Release No. 5 of the Cultural Resource Management Guideline (NPS-28)*

The guideline quoted above generally endorses the same management goals as the ANILCA legislation related to subsistence. In a similar parallel, the cultural resources guidelines also specify that, “The National Park Service will conduct a coordinated program of basic and applied research to support planning for and management of park cultural resources." (XXNPS-28), and include detailed guidance for general research and ethnographic research in particular. Thus, research into the traditional use of Alaskan NPS units by local populations is mandated both by ANILCA, and by the NPS guidelines for preservation of cultural resources. This dual emphasis is of practical importance partly because it opens the possibility for important social science focused on traditional uses even in those Alaskan NPS units created prior to ANILCA. For example, cultural resources mandates motivated a recent study of gull-egg harvesting in Glacier Bay National Park (XXCitation).

The continuous use of NPS units by local populations creates a special need for ethnographic studies and other forms of social science in Alaskan NPS units. However, the relative administrative status of traditional and recreational uses is no clearer in the

cultural resources context than in the context of ANILCA. Traditional patterns of use per se are apparently not classified as cultural resources with protection mandated by the Organic Act, but it is also clear that such patterns of human use are conceptually and managerially separate from the recreational visits protected by the "visitor enjoyment" half of the dual mandate. Managers are left to devise policies that balance the diverse mandates and regulations as best they can. In such an environment, social science research is likely to prove useful in measuring the extent of conflicts between traditional and recreational users and in describing the factors underlying those conflicts.

2.2.3 Integrating Subsistence and Cultural Resources Research

One of the important aspects noted above concerning the administrative context of social science is the managerial and practical separation between studies of recreational and traditional users of NPS units. We described several examples above in which conflict between recreational and traditional users might provide a direct motivation for cooperative research across NPS divisions. The NPS policies concerning management planning (see section 1.2 above) also motivate integrative social science that bridges the existing separation because management plans are unlikely to propose reasoned and defendable policies without the information that such studies provide.

III. LITERATURE REVIEW

The two primary goals of this literature review are 1) to present a summary of the existing social science research conducted in Alaskan NPS units, and 2) to suggest priorities for future research. The second goal will be discussed later in this chapter so our focus at this point rests on the presentation of existing research.

1. Summarizing Existing Social Science Literature

1.1 General Principles

1.1.1 Different Reviews of Research Concerning Recreational and Traditional Uses

Earlier in this document, when describing the administrative context of Alaskan social science, we argued that the social science plan should include both studies of recreational visitors and the cultural anthropology and ethnographic studies focused on use of NPS units by local residents (e.g., subsistence use and culturally significant traditional use) that have been defined out of other plans and policies. Despite our commitment to this argument, the time and funding available for this project limited our ability to fully review all the literature. In consultation with the visiting chief social scientist, we decided to conduct a detailed review of the research examining recreational use of NPS units and to present only a general description of the research focused on traditional use by local populations. Interested readers can seek out a more detailed review of research studies focused on traditional use that is in preparation by Donald Callaway for publication in Alaska Park Science.

1.1.2 Regional Analysis

This review is intended to provide a regional analysis rather than a unit-by-unit analysis of the existing research. Such analysis can occur in a variety of ways. First, some research answers questions about the Alaskan region as a whole. Although such research is rare, its findings are obviously regional in scope and will be highlighted in this document. Second, the prevalence of particular types of research across Alaskan NPS units can be analyzed on a regional basis. This does not mean that the adequacy of the research program at each NPS unit will be assessed, but that general patterns will be sought out and highlighted. For example, information about use levels and user distribution is generally inadequate to provide more than a weak basis for management decisions. Finally, some opportunities for meaningful regional aggregation of social science information will also be pointed out. Such opportunities are limited because one must avoid aggregation that misrepresents different user populations. For example, it

may be reasonable to aggregate the total number of hiker encounters with brown bears across multiple NPS units, but could be misleading to aggregate the bear encounters of hikers, kayakers, and tour-boat customers.

1.2 How We Reviewed and Organized the Existing Research

1.2.1 Methods of Searching for Studies

Before beginning this project we understood that much of the social science conducted in Alaska has never been published in the academic literature. Thus, the methodology for the literature review went well beyond a simple computerized search of the peer-reviewed journals. The bullet-points below describe our attempts to search for social science studies focused on recreational use. We limited the review to research conducted within the last thirty years.

Literature Review Methodologies:

- Literature search of natural science and social science academic databases. Search criteria included specific Alaskan NPS units and general research themes combined with 'Alaska', such as 'crowding and Alaska.' Search resulted in many journal articles. The bibliographies of these articles were also studied for further sources.

- Search of UW library catalogue, including sources from the UW Forestry library, using search parameters mentioned above. This search turned up books, government documents, and materials in the PNW special collection. Again, bibliographies of these sources were studied for further sources.

- National Park Service Library database search. Visit to NPS branch library in Seattle. Search yielded books, technical reports, and "gray literature".

- Archival research and on-line literature searches (when applicable) of research institutions and groups including: CPSU at UW, Seattle; Aldo Leopold Wilderness Research Institute; USDA, NPS, Pacific Northwest Research Station, Institute of Social and Economic Research in Alaska. Search yielded articles, reports, on-line resources, other bibliographic source information.

- Contacted representatives of each NPS unit in Alaska, explaining the study and asking for social science research studies conducted in their unit, including technical reports and gray literature.

- Contacted academic professionals, research consultants, Alaska tourist organizations, Alaska chambers of commerce to ask for any recommended studies or organizations.

1.2.2 An Emphasis on Research Topics and Methods Rather than Study Results

Different reviews serve different purposes. Unlike many reviews that serve primarily as catalogues of existing research findings, this review is intended to support the development of a plan to guide future social science research. Accordingly, the presentation of the research and the research evaluation emphasize the topics that are addressed and the methods chosen to address them rather than the specific results of the existing studies.

1.2.3 Conceptual Organization

As with any complex body of information, social science research can be conceptually organized in a variety of ways. Because NPS managers and planners will be the primary readers of this document, we have chosen to organize the main body of this research summary around a range of questions that managers commonly answer through social science (see Table 1 below).[8]

Table 1. Managerial questions forming a conceptual framework for existing research.

1. How many visitors are where, when?
2. Who visits this unit or site?
3. When and how do visitors plan their trips?
4. What do visitors do at this unit or site?
5. How do visitors evaluate the events they experience (and why)?
6. Why do visitors come to Alaskan NPS units?
7. How do visitors feel about the NPS and its policies?
8. How well do (or might) management actions work?

These questions do not represent a prioritized list of the types of social science research that should be conducted. Instead, they are intended to provide a conceptual framework for organizing and understanding the main body of existing research. The questions are derived from a variety of sources, most prominently from the organization of the research reports included in the review. Taken as a whole, they summarize virtually all the research concerning recreational visitors that we found. In addition, the first six

[8] Other organization schemes might revolve around social science disciplines (e.g., sociology, psychology, economics) or research methods (e.g., quantitative surveys, qualitative interviews, direct observation).

questions are generally arranged from simplest to most complex in terms of the social science information used to address them. The framework has flaws – some studies fit awkwardly, some categories have overlaps or depend on arbitrary distinctions, and two categories of research that don't fit are tacked on afterward. However, we are aware of no other organizational frameworks that are well suited to this review. A unit-by-unit presentation runs counter to the regional nature of the social science plan, a methodological framework emphasizes the tools rather than the desired outcomes, and an arbitrary basis such as chronological or alphabetic order would do very little to help readers synthesize the information and develop a full understanding of the body of literature. We hope that the conceptual framework of research categories contributes to readers' understanding.

The final two sections of the research review are organized based on the studied user population (*1.4 Research Concerning Traditional Use*) and on the research discipline (*1.5 Economic Research*). It might have been possible to shoehorn the studies in these sections into the same conceptual framework as the research focused on recreational visitors, but we felt that the gain in consistency did not justify glossing over the variety of ways that the research in the final sections differed from the research focused on recreational visitors that was included in the main body of the review.

Parallel Construction

To the extent possible, parallel construction is used within sections 1.3.1 to 1.3.8 below. Inevitably, this leads to some redundancy if those sections are read straight through. Such redundancy was deemed acceptable, however, in order to keep the chapters self-contained for readers who refer to the chapters independently.

Remembering the Administrative Context

The pattern of existing research is dictated not only by the potential questions that might be answered but also by the administrative context of laws and regulations relevant to social science in Alaskan NPS units. The results of this literature review will be better understood if one both considers the specific information that the research provides, and

has also read the chapter above discussing the administrative context that establishes particular topics as focal points for social science research.

1.2.4 The References and Bibliography

A list of cited references and a bibliography are included at the end of this document. The references include only literature cited in the text and are organized in a standard alphabetic manner. The bibliography includes only descriptions of social science research conducted in Alaskan NPS units. Most of the documents in the bibliography are also included in the references, but the bibliography also includes some documents that were not cited in the text. The documents in the bibliography are organized based on the NPS unit in which each study was conducted.

1.3 Research Concerning Recreational Use

Throughout the rest of this document we will use the term visitor only to refer to recreational users.

1.3.1 How Many Visitors are Where, When? Visitor Counts and Distribution

Total visitor counts—the number of visits people make to Alaskan NPS units each year—are one basic area of social research. Because they are quantitative in nature and often collected without contacting visitors, count data may attract little attention. However, knowing the number of people who visit NPS units provides managers with a fundamental platform on which to base a variety of decisions. Visitor distribution is the related measurement of where and when people visit NPS units. This information can help managers assess the areas of their unit and times of the day or year when visitation is most likely to create negative impacts, and also help managers assess the impact and effectiveness of many management actions.

Research Methods

The official NPS visitor counts in Alaska's NPS units are reported on an individual unit basis. There is no universal methodology that is employed to count visitors, as each unit has unique conditions that shape how these numbers are determined. For example, counts may be obtained a) by tracking the number of permits issued for certain activities, b) by ranger estimates, or c) by visitor logs. The reliability of visitation numbers likely varies between NPS units. The wide fluctuations in visitor statistics from year to year suggest the need for a more stringent reporting methodology.

Visitor distribution data may be collected using indirect methods, such as mechanical counters or unobtrusive observation of visitors' locations (e.g., Zweibel, Vande Kamp, and Johnson, 2004), or by more direct observation techniques such as asking respondents to keep a dairy or journal of where they went during their trip (e.g., Swanson et al., 2002). Distribution data from both sources are particularly useful when entered into GIS mapping programs for analysis and display (Wing and Shelby, 1999). Some types of

distribution data can also be used to create computerized simulation models that can be used to estimate a variety of use measurements across existing and hypothetical conditions (see XXCitation). Finally, distribution data can be correlated with trip information, to map the parts of the unit that are used for particular activities (see Section XX2.3 for more discussion).

Alaskan NPS units present unique challenges for recording accurate and reliable visitation and distribution levels, especially in wilderness areas. These challenges include: 1) the sheer size of the areas to be monitored; 2) the multiple points of visitor entry found in many NPS units; 3) the relatively small number of visitors to Alaska NPS units compared to units in the lower 48 states; and 4) the fact that permits are required of only some visitors in some units.[9] A research team at the University of Alaska led by Dr. Lilian Alessa is currently seeking to determine how best to address these challenges and obtain accurate counts of remote and dispersed users of Alaskan NPS units. The project is intended to describe the best methods for counting both recreational and subsistence users and is a collaboration between the NPS social science program and the University of Alaska, Anchorage. Results are expected in the fall of 2004.

Existing Research

Visitor Counts

The NPS reports visitation numbers for individual units. These counts are then compiled to estimate the total visitation statewide. Visitor count data are also compared to previous years, to determine the trends in visitation levels for individual units and for the Alaska region as a whole. The most recent visitor count estimates are from the NPS 2003 statistical abstract, presented below in Table X.

[9] Another issue in determining total visitation is the question of how to count the visits of subsistence users (see Section X for further discussion).

Table X.X: Recreation Visits / Visitor Days in Alaska, 2003

Area	Recreation visits	% Change	Recreation visitor days	% Change
Aniakchak NM & PRES	154	-36.10%	484	-30.04%
Bering Land Bridge NPRES	2,425	-12.61%	606	-12.61%
Cape Krusenstern NM	3,587	9.83%	772	14.82%
Denali NP	360,189	15.69%	470,479	33.39%
Gates of the Arctic NP&PRES	5,075	-23.66%	8,770	58.09%
Glacier Bay NP & PRES	366,319	-10.25%	413,185	-5.84%
Katmai NP	51,589	-12.60%	25,558	-61.76%
Kenai Fjords NP	243,719	-3.21%	63,169	-5.82%
Klondike Gold Rush NHP	844,576	11.95%	288,983	10.50%
Kobuk Valley NP	4,006	0.99%	1,148	1.36%
Lake Clark NP	4,505	4.16%	4,363	-13.26%
Noatak NPRES	3,674	2.45%	3.961	7.09%
Sitka NHP	251,036	-14.93%	12,857	-11.72%
Wrangell-St. Elias NP&PRES	43,311	7.33%	166,027	7.33%
Yukon-Charley Rivers NPRES	5,552	7.93%	30.175	-2.22%
Alaska totals	**2,189,717**	**1.84%**	**1,490,536**	**6.12%**

From: National Park Service Statistical Abstract

One way to determine the accuracy of the NPS visitation data is to compare these numbers with visitation statistics gathered by other private and public research studies. However, we found no existing examples of studies that attempted to calculate the total number of visits to any Alaskan NPS unit. Several studies did attempt to determine the number of visitors within certain sub-populations, such as the number of floaters on the Yukon-Charley River (Swanson et al., 2004a), the number of sports-hunters in Gates of the Arctic (Christensen and Watson, 2002) or the number of private vessel boaters in Glacier Bay (Swanson et al., 2004b), but there was no unit in which data were available to estimate total visitation.

Although agencies such as the Alaska Chamber of Commerce and the Alaska Travel Industry Association report tourism statistics for out-of state visitors to the state of Alaska, these studies do not specifically report visitation data for NPS units. General data from these groups, however, provide some insight into the role that Alaskan NPS units play in state and regional recreational trends. For example, the Alaska Chamber of Commerce reports that 1.2 million out-of-state visitors came to Alaska in 2003. One regional study estimated the number of out-of-state visitors that arrived in Alaska for the fall/winter season of 2000-01 and for the summer season of 2001 (Northern Economics, 2002). The study estimated that 254,500 visitors came to Alaska during the fall/winter season, representing approximately 34% of people who arrived in Alaska. During the summer season, approximately 1,202,800 visitors came to Alaska, representing about 72% of total arrivals. Unfortunately, conclusions about the role that Alaskan NPS units play in state tourism for out-of-state visitors is limited because data are not available to estimate the proportion of tourists who visit multiple NPS units or the ratio of in-state to out-of-state NPS visitors.

Another source of regional tourism data is the state-funded Alaska Visitor Statistics Program (AVSP), which began in the early 1980s to collect information about out-of-state tourists to Alaska. This program, however, has not collected field data since 1993 (Colt, 2002). The McDowell Group, a research and consulting group based in Alaska, funded and conducted a survey in 2003 that asked visitors to Alaska if they planned to visit national parks. Results from this survey can be purchased from the group (Haugland, personal communication).

Visitor Distribution

As with visitor count data, there has been little research systematically estimating visitor distribution within Alaskan NPS units. An early study investigating visitor density in Denali National Park determined that day hikers caused more damage to wilderness resources than overnight hikers because day hikers tended to use a small portion of the park (Loder and Womble, 1979). One recent study on the Alagnak River employed an

interesting methodology to determine the distribution of anglers and river floaters. The researcher systematically traveled up and down the river using a GPS receiver to record the location of every party of visitors they saw. These data were then aggregated in a GIS database and analyzed in a variety of ways (Zwiebel, Vande Kamp and Johnson, 2004).

For future research, methodologies developed to measure visitor distribution in other natural recreation areas might be applied to Alaskan NPS units. For example, one study in the McDonald Forest of Oregon entered visitor survey data into GIS models to determine spatial patterns of recreational use (Wing and Shelby, 1999). The use of computer simulation models also has promise. Computerized models have been used to estimate total passages and encounters between ships and aircraft at Misty Fjords National Monument (XXCitations) and a variety of simulation models are being developed to describe use at NPS units in the lower 48 (e.g., XXCitation, Acadia, Isle Royale, Saguaro).

Summary and Avenues of Future Research

Although the NPS collects annual total visitation data for units in Alaska, such data are often inaccurate and unreliable (CITATION). There are no alternative sources of data describing total visitation levels. Few studies describing visitor distribution within Alaskan NPS units are available. Research priorities in this area include:

- Developing reliable methodologies for counting total visitation to Alaskan NPS units.
- Conducting strong baseline visitation level studies that can be used as a platform for monitoring and predicting trends.
- Using GIS and computer modeling technology to profile visitor distribution data.
- Exploring partnerships with other agencies that collect tourism statistics.
- Develop standard methods for incorporating subsistence users in user counts and distributions.

1.3.2 Who Visits this Unit or Site? Visitor Demographics

Basic demographic descriptions of visitor populations can be thought of as visitor profiles. They may include information such as age, gender, place of residence,

education level, household income, ethnicity, marital status, employment status, and NPS visitation history. Visitor profiles may also describe the types of groups people travel to the unit in. Such data include the number of people in the group, if there are children under eighteen, and the group composition (family, friends, etc.).

Visitor demographic data are sometimes used to profile the "average" visitor or group to the Alaska region or to individual units. Although the concept of the average visitor may be useful in some scenarios, aggregation of data often masks the existence of distinct subgroups of visitors that can be empirically identified. For this reason, social science studies often attempt to separate universal visitor populations into sub-groups or segments. For example, visitors to Glacier Bay could be broken into groups such as backcountry users, day hikers, tour boat passengers, private vessel operators, and cruise ship passengers. Section XX2.3 discusses techniques specifically aimed at visitor segmentation.

Research Methods

Visitor profile data are relatively straightforward and are usually collected using written surveys. Often, studies will first distribute short contact sheets to visitors asking them to fill out basic information, including demographic data. These contact sheets can then be followed by longer, more in-depth mail surveys. Demographic data are also collected as part of phone surveys. Collecting demographic data using open-ended interviews can pose challenges, as interviewers must make sure to collect all data from all respondents, and to present the data in ways that are easily located when coding data. This is usually accomplished by including a structured set of demographic questions in the interview protocol.

Visitor profile data are useful descriptions of information such as the proportion of local vs. non-local visitors, but the data can also be correlated with other research variables to provide a more sophisticated understanding of visitors and visitation patterns. For example, managers can examine if certain demographic groups (such as visitors under 30) prefer a specific type of recreation activity (such as backcountry hiking). Also,

demographic data are often used in market segmentation analysis (see Section 1.3.6 for further discussion).

In reviewing visitor profile data, several caveats warrant mention. First, some demographic data are known to be subject to nonresponse bias. For example, mail survey respondents are often older than nonrespondents, increasing survey estimates of the average age of the visitor population as a whole. Such nonresponse biases should be factored into subsequent analyses when appropriate. Also, care should be taken when comparing results across studies. Visitor profile data may use either individuals or groups as the unit of analysis, or sometimes exclude data from persons who are not eligible from the survey (e.g., visitors less than 18 years old). Data describing different units of analysis or different visitor populations cannot be directly compared.

Existing Research

Regional Research

Regional level demographic research generally looks at large-scale patterns across the state of Alaska, geographical sub-regions of Alaska, or multiple NPS units in Alaska. Regional research can assist managers to address questions such as: Do visitors to Alaskan NPS units represent groups from across the socioeconomic spectrum? Are visitors to Alaskan NPS units different in any way from visitors to NPS units in the lower 48 states? Do certain demographic groups tend to visit a particular region of Alaska? Overall, there has been little regional visitor profile research conducted in Alaska that has focused on NPS units.

Basic studies of U.S. and Alaska residents such as the U.S. census constitute one form of regional demographic research. Another example of this type of research is the NPS Comprehensive Survey of the American Public, which collected demographic data through phone surveys and analyzed the results both nationally and for the state of Alaska (2002). These data sets are often useful to NPS managers as “control groups” that can be compared to the profiles of various subpopulations of interest. For example, one early study compared the demographic profile of NPS visitors with the profile of the general

U.S. population, to determine if NPS visitors represented an "elite" segment of society (Bultena and Field, 1978).

A second type of regional research profiles people who live in Alaska (or in a specific Alaska region) and who visit Alaskan NPS units. Again, there is not much regional research available for this type of study. The NPS Comprehensive Survey of the American Public compared the demographic data for Alaskan respondents who visited NPS units and Alaskan respondents who did not visit NPS units. The study, however, did not distinguish between visits to NPS units in Alaska and visits to NPS units in other states. Nonetheless, Table X.X illustrates one potentially interesting finding from the study showing higher visitation rates for Alaskans across ethnic categories, but particularly for African Americans.

Table X.X
From the NPS Comprehensive Survey of the American Public
Alaska Region Technical Report: Table D5.2, General Public
Percent of Respondents by Race and Ethnicity

	American Indian or Alaska Native		**Asian**		**Black or African American**		**Native Hawaiian or other Pacific Islander**		**White**	
	AKR	**Nat.**	**AKR**	**Nat.**	**AKR**	**Nat.**	**AKR**	**Nat.**	**AKR**	**Nat.**
Visitor	39%	32%	50%	33%	58%	14%	--	18%	55%	35%
Non-visitor	61%	68%	50%	67%	42%	86%	100%	82%	45%	65%
Total N	*N==77*	*N=28*	*N=20*	*N=90*	*N=19*	*N=406*	*N=1*	*N=34*	*N=359*	*N=2631*

AKR = Alaska; Nat. = National

Another form of regional demographic research describes visitors to Alaska who travel to the state for any recreational purpose. One regional study prepared by Northern Economics provided basic demographic information for out-of state visitors who arrived in Alaska during the fall/winter season of 2000-01 and for the summer season of 2002. This report is available on-line. Other studies have been conducted by the Alaska Travel Industry Association, the Alaska state chamber of commerce, the Alaska Visitor Statistics Program (AVSP), and by private research groups. Many of these studies focus on the cruise-ship industry. These studies do not specifically analyze the demographic profiles of NPS visitors. They may, however, have raw data on NPS visitation available for further analysis.

Regional demographic research might also profile visitors across all Alaskan NPS units to assess similarities in visitor demographics. One way to do this is to compare visitor profile data gathered in individual units. Another interesting comparison would compare the profile of Alaskan NPS visitors to Alaskans in general. To maximize the validity of such comparisons, however, the studies must all employ similar methodologies. The Visitor Services Project (VSP) studies provide one such opportunity for regional synthesis, as these studies have been conducted in multiple NPS units in Alaska using

comparable methodologies (see Table X.X). Data for these technical reports, however, are limited because they are gathered during approximately one-week sampling periods—a short time that leaves open the statistical possibility that the results do not represent all visitors.

Table X.X
Visitor Profile Data, Visitor Service Project Surveys

NPS Unit or Site	Study period	N	Av. age	% Alaskan	% first-time
Denali NP	July 26 – Aug 1, 1988	428	52.0		80%
Glacier Bay Bartlett Cove	July 23 – Aug.1, 1999	545		6%	87%
Kenai Fjords NP	July 7 -13, 1990	383	48.5	24%	78%
	Aug. 5 – 11, 1999	331	45.8	19%	82%
Klondike Gold Rush NHP	July 25 – 31, 1992	411	56.2	4%	91%
	July 6 -12, 1998	545	56.5	2%	91%
Sitka NHP	July 11 – 17, 1994	402	53.2	13%	86%
Wrangell-St.Elias NP&PRES	July 12 – 18, 1995	444	45.4	31%	80%

Finally, information about visitation patterns can provide another regional view of Alaskan NPS units. Often, social science studies will ask respondents how often they have visited the particular unit where they were surveyed to determine if they are first-time visitors. By also asking respondents to list which other Alaskan NPS units (if any) they plan to visit or have already visited, one can see if patterns emerge. Is there, for example, an Alaskan NPS circuit that visitors tend to follow? Do people usually visit more than one unit? One example of such a study was a survey of tour boat passengers to Glacier Bay, which found that 56% of respondents also visited Denali National Park during the same trip (Johnson 1989). This type of regional visitor network research is rarely conducted. Such research could help managers develop regional strategic plans that address goals such as maintaining a spectrum of visitor opportunities in the region (XXROS citation), or designing effective strategies for distributing information to visitors.

Park Level Research

Many social science studies conducted in individual Alaskan NPS units contain at least some description of visitors. The central role that demographic data play in such research varies from study to study, as does the extent to which data are explored to reveal larger themes and trends. The availability of visitor profile data also varies from unit to unit, with more research having been conducted in highly visited units such as Denali and Glacier Bay.

As mentioned earlier, a basic form of visitor profile research involves collecting demographic data from all visitors to the unit and then compiling them to present "average" visitor statistics. Such practices, however, mask important differences between subgroups of visitors. More focused studies in particular units describe specific groups of users, such as people who engage in a certain activity. Such data present a more realistic view of the diversity of NPS visitors, and sometimes allow demographic traits of different groups to be compared. Chart X.X below lists some examples of the visitor subpopulations to NPS units in Alaska that have been profiled through social science research. The table is not intended to represent an exhaustive inventory of all studies of visitor subpopulations conducted in Alaskan NPS units.

Table X.X
Examples of Social Science Studies in Alaskan NPS Units
that include Visitor Profile data of Specific User subpopulations

NPS Unit	Subpopulation	Study author(s)
Denali	Day hikers	Loder &Womble, 1979
	Backcountry users	Womble, 1979a
	Backcountry users	Swanson et al., 2002
	Backcountry users	Christensen, Kneeshaw & Watson**
Gates of the Arctic	Recreational hunters	Christensen & Watson, 2002
	Floaters on the Upper Noatak River	Christian, 2003
Glacier Bay	Backountry users	Cheek & Field, 1978
	Cruiseship passengers	Field, Clark, & Koth, 1984
	Tour boat passengers	Johnson, 1989
	Tatshenini-Alsek river	Carroll & Johnson, 1985
	Private vessel operators	Swanson et al.**
Katmai	Campground Users	Studebaker & Womble, 1979
	Alagnak River floaters	Spang, Vande Kamp & Johnson**
Kenai Fjords	Visitors to Exit Glacier	Swanson,Vande Kamp & Johnson, 2003
Klondike	Hikers on Chilkoot Trail	Womble, Wolf & Field, 1978
Yukon-Charley	River floaters	Swanson et al**
Wrangell-St.Elias	Fall visitors	Glaspell & Watson, 2003
	Wilderness visitors	Kneeshaw, Watson, & Glaspell 2004

** Study reports in progress

The visitor subpopulation that has received the most research attention is backcountry and wilderness users (e.g., Flewelling and Johnson, 1981; Swanson et al., 2002; Kneeshaw, Watson, and Glaspell, 2004). A wide range of other types of recreationists have received varying amounts of research attention, such as campground users, river recreationists, day hikers, cruise-ship passengers, recreational hunters, anglers, air tourists, winter users, and climbers. When prioritizing subpopulations to study, the attributes of each unit, the difficulties presented in sampling the population, and the potential impact of the group on natural resources should be considered.

Summary and Avenues of Future Research

There has been little regional research describing the visitors to NPS units in Alaska. Most demographic research of Alaska NPS visitors has been conducted on an individual unit basis. Visitor profiles can be general for all visitors to a unit, or descriptive of particular user groups. Research priorities in this area include:

- Moving away from "average" visitor profiles to research more specific subpopulations such as visitors who take day-hikes or Alaskan resident visitors.
- Conducting strong baseline visitor profile studies that can be used as a platform for monitoring and predicting trends.
- Exploring partnerships with other agencies that collect visitor demographic statistics.

1.3.3 When and How do Visitors Plan Their Trips? Trip Planning

Trip planning research investigates when and how visitors plan their trip to Alaskan NPS units. It collects information such as: Who planned the trip? How far ahead of time did planning start? What resources were used in planning -- internet, travel agencies, guidebooks, NPS offices? How much information was available? Was the information useful? Research questions might also ask respondents if they used specific NPS trip planning resources, such as on-line reservation systems, and what they thought of such services. The reasons why people plan trips to Alaskan NPS units are not discussed in this section, but in section 1.3.6, Trip Motivation.

Trip planning is of interest to managers for a variety of reasons. First, because it represents a critical point at which visitor trips (and their subsequent experiences) can be influenced. By better understanding how people plan trips, NPS staff can provide information to potential visitors that will help them plan the trips they want and also helps managers mitigate the impacts of visitation. Second, trip planning information can help managers refine planning resources such as on-line reservation systems so that visitors' first contact with the NPS regarding their trip is positive. Finally, trip planning information can be correlated with other data to look for informative patterns. For example, do people who use the unit for different types of activities tend to make spontaneous rather than pre-planned trips? Does the primary trip-planner tend to be more satisfied with the trip than other people in the group?

Research Methods

In general, data on trip planning have been gathered through survey research. The scope of survey questions range from general to specific, and are usually included as part of a

larger study. Few qualitative studies have been conducted that explore trip planning for visitors to NPS units in Alaska; such studies may potentially reveal important facets of the planning process. For example, one study combining qualitative and quantitative research determined that for some wilderness visitors to Gates of the Arctic, the absence of planning materials and information was a positive factor in their overall trip experience (Kneeshaw et al., 2003).

Trip planning information could also be collected using indirect measures, such as tracking the number of hits for NPS websites, or evaluating the links between NPS websites and other sites around the Internet. Detailed records describing visits to travel agents, visitor information stations in Alaska, gear shops, and other sources of trip information could also be studied to show the demand for specific types of information regarding trips to NPS units in Alaska. Future studies of trip planning might use mixed-methodologies. Such studies combine several research techniques and can be use to, a) match research questions with methods that are well suited to answer them, and b) address a single research question using different methods.

A number of issues commonly related to survey methods affect the collection and interpretation of most trip planning data. Some of these issues include:

- Construct validity. It is important to supply respondents with a definition of planning, or some people will assume that trip planning begins with their first casual conversation about visiting Alaska and others will assume that planning started only after they had made a concrete decision to visit.
- Recollection issues. Post hoc recollection of the trip planning process may introduce errors or bias, especially if a lot of time has elapsed between planning the trip and the survey.
- Over-simplification. Survey data may fail to reflect the group dynamics that often go into processes such as planning trips. Unless a person is traveling alone, he or she likely had to negotiate with others about certain trip details. Similarly, the

actual process engaged in by visitors who list "friends and families" as sources of planning information are poorly understood.

- Inappropriate aggregation of responses. If two groups vary greatly in their planning processes, aggregated information will not represent either group. For example, planning processes are likely to differ between local and non-local visitors.
- Historical context. Rapid changes in the way information is shared in our society have changed the sources of trip information fast enough to limit the usefulness of some survey questions. For example, a study of wilderness visitors Gates of the Arctic reported that 23% of respondents marked the category of "other" as their main informational source for their trip (Kneeshaw, et al., 2003). Similarly, the growing diversity of internet resources means that detailed questions may be needed for more than a surface understanding if trip planning. For example, what specific websites were visited? Did visitors use mailing lists or chat rooms when planning their trip?
- Limitation of the sampled population. Surveys of NPS visitors are inherently limited in that they self-select for people who have actually visited the unit. Accordingly, their data do not represent people who cancelled visits to Alaskan NPS units, or people who decided against a trip based on the information they obtained. Both populations may be of interest to managers. The size of the former group might be estimated based on the number of cancellations and no-shows at Alaskan NPS sites with permit systems.

Existing Research

Regional Research

Regional level research on trip planning can address how non-Alaskans plan their recreational trips to Alaska. Recreational trips in this sense include, but are not limited to, trips to Alaskan NPS units. Such information has been collected on a limited scale by organizations such as the Alaska Travel Industry Association and the McDowell Research Group. These data may be analyzed to determine the extent to which visits to NPS units are the main trip activities around which people plan for their trips to Alaska.

These general data can be compared with data on how non-Alaskans plan their trips to Alaskan NPS units. Data specific to trips to NPS areas are available from the NPS Comprehensive Survey of the American people. This telephone survey asked respondents if they used certain sources of information when planning their trip. Responses were analyzed on a national level and for Alaska residents only. Alaskan respondents indicated that they used information from friends and word-of-mouth most often when planning their trip. This result was consistent with the national average. The survey also asked for opinions on the NPS reservation policies. On this question, Alaska residents differed significantly in their response from the national average, with 24% of Alaskans feeling that the reservations need to be made too far in advance, compared to 14% of the national sample. Although this survey asked some planning questions, many other facets of trip planning were not addressed.

Another avenue of regional research is to examine if similar user groups use similar methods to plan their trip. For example, do all overnight hikers tend to plan their trips in the same way? If so, is such planning different than how cruise ship visitors plan their trips? We found no regional research conducted along these lines.

Regional research could also map the informational networks involved in planning both outdoor recreational trips and trips to Alaska. What websites exist for people trying to plan these types of trips? What visitor centers exist in Alaska, or what gear shops offer information to people seeking wilderness experiences? Once these networks are identified, researchers can examine if the NPS information sources are mentioned within these networks, and if the information provided is accurate and useful.

Park Level Research

To date, there have been several social science studies in Alaskan NPS units that address aspects of trip planning. Often, these data are collected using surveys and represent only a few questions within a larger, general study. People surveyed within NPS units are most often asked about the sources of information they used while planning their trip,

how far in advance plans were made, and who planned the trip. These data have sometimes been examined for subpopulations of visitors, such as local visitors versus non-local visitors.

Several studies included variations on the basic survey questions regarding trip planning. A study of tour boat passengers in Glacier Bay, for example, not only asked people what information sources they used to plan their trip, but which of these sources were most influential in their decision-making (Johnson, 1989).

A study of backcountry users in Wrangell-St. Elias asked respondents how they prepared for their wilderness trip (Kneeshaw, Watson, and Galspell, 2004). Trip preparation in this case included physical training, mental preparation, and buying certain types of gear. Respondents were also asked if this type of preparation was different than the preparation involved in other trips they had taken previously. Future studies might benefit by including questions about both preparation and planning.

One interesting study conducted in the Gates of the Arctic used both quantitative and qualitative research methods to ask visitors about their trip experience (Kneeshaw et al., 2003). The results suggests that some groups of backcountry users prefer to have little information available when planning, as it increases the wilderness flavor of their trips. The study also found that some visitors reported that changing their plans at the last minute also contributed to their positive trip experience. Such research suggests that further qualitative and mixed-method studies are needed to understand all facets of the trip planning process and its affects on trip experiences.

Summary and Avenues of Future Research

Although some social science studies addressed aspects of how people plan their trips to Alaskan NPS units, this topic has the potential for much deeper exploration. The subject would benefit from mixed-method studies, including qualitative work to determine if new research categories need to be developed for use in surveys. Research priorities in this area include:

- Conducting qualitative and mixed-method studies investigating conceptions of planning, the role of the internet, the dimensions of informational networks, and the influences of family and friends on planning trips.
- Exploring ways to integrate trip planning research results with management practices and public outreach activities.
- Research into the use of new technologies such as real-time permitting systems and on-line reservations.

1.3.4 What do Visitors Do at this Unit or Site? Trip Characteristics

Trip characteristic data provide basic profiles of the trips that visitors take to Alaskan NPS units. They include information such as trip length, type of group traveled with, mode of transportation to and from the unit, and what unit facilities were used. Trip characteristics also record visitor activities, such as hiking, camping, taking tours, taking photographs, fishing, etc. These data are useful descriptive resources and can also be correlated with other research variables to provide a more sophisticated understanding of how visitors use the NPS unit. Also, trip characteristic data are often used in market segment analysis (see Section 1.3.6 for further discussion). For the purpose of this report, trip characteristics are discussed separately from visitor experiences (see section 2.4).[10]

Recreational trips to Alaskan NPS units can be classified as consumptive or non-consumptive. Consumptive recreation involves the harvest of biological resources from the unit, through activities such as recreational hunting or fishing.[11] Recording the characteristics of these trips includes, for example, asking anglers how many fish they caught, of what species, and how many they kept. These data are useful both from a recreation and from a natural resource management perspective.

Research Methods

The majority of trip characteristic data have been collected using phone, on-site, and mail-in surveys. Trip characteristic data can also be recorded as part of semi-structured or

[10] The distinction between trip characteristics and trip experiences is subtle and some research might be classified in either category. In general, trip characteristics are the things that visitors did, and trip experiences are the things that happened to them.
[11] Non-consumptive recreation may inadvertently cause consumptive use of natural resources, such as soil erosion, trampling seedlings, etc.

open interviews, by direct observation, or by indirect measures such as counting the number of permits issued for a particular activity. Exploratory qualitative research is often necessary to design appropriate questionnaires. For example, when surveys contain a list of potential trip activities in which respondent might have participated, qualitative interviews are often necessary to define the range of potential activities to be included on the survey activities list. Although some activities (such as taking photographs) occur in all NPS units, it is not advisable to use one standard activity list in all Alaskan units because other activities (such as viewing glaciers) are unit-specific.

Some studies with a focus on trip characteristics ask respondents to report specific routes they hiked, including where they stopped for breaks and where they camped (Swanson et al., 2002). Similarly, surveys of consumptive recreationists often ask respondents to record how much time they spent fishing or hunting each day (Christensen and Watson, 2002, Swanson et al., 2004b). To gather this type of data, researchers often distribute logs or diaries to visitors before their trips and ask them to record information throughout their visits. The primary drawback of this methodology is the relatively heavy reporting burden on survey respondents that may lead to lower response rates.

At least two methodological caveats are particularly relevant when collecting trip characteristic data. First, respondents may inaccurately report activities that do not comply with NPS rules, policies, or permit limits. Second, trip characteristics often differ significantly for different user groups (e.g., local residents and tourists, or backpackers and day users). Accordingly, care should be taken when viewing aggregated data. Analyses should separate and compare the trip characteristics of groups that are likely to differ.

Existing Research

Regional Research

Regional level trip characteristic research looks at large-scale patterns across the state of Alaska, geographical sub-regions of Alaska, or multiple NPS units in Alaska. Regional research can assist managers to address questions such as: Is it possible to describe the

"typical trip" or "typical types of trips" to Alaskan NPS units? What range of recreational opportunities do Alaskan NPS units offer? Do out-of-state visitors have the same sort of recreational visits as local residents? What percentage of outdoor recreational visitors to Alaska visit NPS units? Overall, little regional research has focused on the trip characteristics of visitors to Alaskan NPS units.

One type of regional research includes profiling all types of outdoor recreational activity that U.S. residents engage in. These data sets are often useful to NPS managers as "control groups" that can be compared to the profiles of various subpopulations of interest. The National Survey on Recreation and Environment (NSRE) provides one such national recreational profile, although the questions do not explore outdoor recreational activities in any great depth. Other recreational data are available through state agencies such as the Department of Fish and Game, which tracks resident and non-resident fishing and hunting licenses. The NPS Comprehensive Survey of the American Public (2003) reports the outdoor recreational behavior of respondents and compares data of Alaska residents with national averages.

Regional outdoor recreational trip profiles also exist for all trips taken in Alaska. For example, data from various state agencies have been compiled to present a recreational profile of all trips to Southeastern Alaska (Colt, date). Also, an early study by Clark, Johnson and Field gathered survey data on the recreational patterns of people living in Alaska (1981). General studies on the trips taken by out-of-state visitors to Alaska have also been conducted by the Alaska Travel Industry Association, the Alaska state chamber of commerce, the Alaska Visitor Statistics Program (AVSP), and by private research groups such as the McDowell group. These studies do not specifically analyze the types of trips taken to Alaskan NPS units.

Regional research can also describe how Alaskan NPS units fit into the spectrum of recreational opportunities offered throughout the state. For example, a recent study investigates how the opportunities at Wrangell-St. Elias National Park and Preserve fit into the range of wilderness recreation activities available in Alaska (Kneeshaw, Watson

and Glaspell, 2004). Similarly, a study at Kenai Fjords asked respondents if they felt other places in Alaska offered a recreational experience comparable to the Harding Icefield Trail (Swanson, Vande Kamp and Johnson, 2003).

Regional research may also compare the trip profiles of individual Alaskan NPS units. In order for such comparisons to be valid, however, the studies must all employ similar methodologies. As with visitor profile data, the Visitor Services Project (VSP) studies provide one such opportunity for regional synthesis. Data for these technical reports, however, are limited because they are gathered during approximately one-week sampling periods—a short time that leaves open the possibility that the results do not represent all visitors. Nonetheless, basic trip characteristics described in the VSP studies could be compared across NPS units.

Also, groups of visitors who take similar trips might be found by conducting research across NPS units in Alaska. For example, by asking survey respondents to list the other Alaskan NPS units (if any) they plan to visit or have already visited and what activities they plan to do there, managers might be able to detect stable patterns of visitation or networks of NPS units. To date, few such studies have been conducted.

Park Level Research

Many social science studies conducted in individual Alaskan NPS units describe trip characteristics. The emphasis on trip characteristics varies from study to study, as does the extent to which data are explored to reveal larger themes and trends. The availability of trip characteristic data also varies from unit to unit, with more research having been conducted in highly visited units such as Denali and Glacier Bay.[12]

A basic form of trip profile research involves collecting data from all visitors to the unit and then compiling them to present "average" trip statistics. Such methodology, however, often misses the significant differences between visitor subpopulations. More focused studies describe the trips taken by specific groups of users, such as people who

[12] The bibliography marks all sources that systematically describe trip characteristics with the letters "*TC*."

engage in river recreation or backcountry hiking. Such data present a more realistic view of the diversity of trips that people take in Alaskan NPS units.

Researchers employ different methodologies depending on the types of trip characteristics they want to examine. Survey data can adequately record basic characteristics such as the number of days spent in the unit. More specific descriptions may be collected through qualitative studies, which ask subjects to describe what they did in their own words. Other methods such as direct observation, GIS mapping, and visitor diaries can also provide information on the types of trips people take in specific NPS units.

Box X.X below lists some of the trip characteristic data collected in Alaskan NPS units to describe non-consumptive visits. The list generally represents the range of information collected but is not an exhaustive inventory. It is important to remember that a given study can collect a limited set of information. Thus, it is necessary for NPS managers to carefully consider the types of information that are most relevant to management concerns in their unit and on a regional level.

Characteristics of Consumptive Recreational Trips

Box X.X

Examples of Recreational Trip Characteristic Data Collected in Alaska National Park Service Areas

How long did you spend in the park?
What did you do during your trip? (select from list)
What month and day did you enter / leave the park
How did you travel to and from the park?
Are you part of an organized tour?
Did you take place in any guided activities? If so, what?
Where did you sleep? For how many nights?
Did you speak with a ranger?
Did you use park restrooms?
Did you visit the concession stand?
Did you use park maps or guides?
Did you read through interpretive materials?
Did you go to a visitor center?
Where did you access the park?
How did you access the park?
Did you follow trails?
What route did you take?
Did you have a campfire? A cooking stove?

Consumptive recreational trips involve the harvest of NPS natural resources through activities such as hunting or fishing. To describe these trips, researchers often ask respondents to report information such as the equipment they used, what species they targeted, how much was caught / killed, and what they did with the meat or fish. Respondents could also be asked to report information such as the size and sex of the fish or animal. Methods used to collect these data include daily fishing logs (Swanson et al., 2004b) and post-trip quantitative surveys (Christensen and Watson, 2002).

The trip characteristics of consumptive recreationists are useful for both the management of visitor experiences and of natural resources. In particular, harvest information (i.e., data describing how many of what species are removed from the unit) is relevant to both visitor experiences and the ecological system. Box X.X [where's the box]below lists some of the questions commonly asked about consumptive recreational trips.

Summary and Avenues of Future Research

There has been some regional research describing the types of trips people take to Alaska, though most of this research does not specifically address trips to Alaskan NPS units. Most research characterizing trips to NPS units has been conducted on an individual unit basis. Although trip characteristics can be general for all visitors to an NPS unit, data are usually more informative when describing the trips of specific user groups. For example, trips by local residents are different from other types of visitors. Data describing consumptive recreational trips is also useful for natural resources management. Research priorities in this area include:

- Moving away from "average" trip profiles to research more specific types of trips.
- Using mixed methodologies to obtain trip characteristic data and descriptions.
- Conducting strong baseline trip characteristic studies that can be used as a platform for monitoring and predicting trends.
- Exploring partnerships with other agencies that collect recreational trip statistics.
- Determining if regional patterns of visitation by specific groups of visitors link Alaskan NPS units (or other Alaskan attractions).

1.3.5 How do Visitors Evaluate the Events They Experience?

The research describing how visitors feel about the events they experience often measures a variety of factors including, what people expected from their trip, objective information about the events that occurred during their trip, and how they felt about their experiences.[13]

The research in this section is not always conceptually distinct from the trip characteristics section (Section 1.3.4) because the activities that visitors do or plan to during a trip are closely related to the events that happen to them during that trip. There is also some conceptual overlap between this section and section 1.3.6 discussing trip motivations -- the factors that motivate visits are related to the experiences that visitors obtain during their trip and the way they evaluate those experiences.

The organization of this section differs from earlier sections in that the literature review focuses almost exclusively on social science studies of individual NPS units. There are few research questions concerning the evaluation of trip events that are appropriate for regional analyses. However, one interesting form of regional-level research might examine if there are distinctive characteristics of an "Alaska experience" that are perceived by visitors to Alaskan NPS units. Visitor perceptions could also be examined across Alaskan NPS units, to assist in designing a regional Recreational Opportunity Spectrum (ROS: XXCitation). The goal of a regional ROS is to provide a balanced and broad spectrum of recreational opportunities across the protected areas in the region.

More than in other sections of this review, the social science research investigating trip perceptions reflects the administrative context discussed earlier in this document (see Section 1, *General NPS Legislation, Guidelines, and Policies Relevant to Social Science*). The influence of NPS mandates on the existing research is particularly strong

[13] Although encounters with NPS personnel are events that might affect visitor perceptions, this section does not contain research focused on perceptions of the NPS and its management. Instead, these topics are addressed in Section 1.3.7.

in motivating studies of general trip satisfaction and studies of crowding and other effects related to visitor use levels.

Existing Research

As discussed previously, one half of the dual mandate under the Organic Act is to provide visitors with opportunities to enjoy NPS units. Accordingly, much social science research has been dedicated to measuring trip satisfaction. The measurement of visitor satisfaction allows managers to assess if they are meeting required legislative and administrative guidelines.

Trip satisfaction is a complex concept to define and measure. Researchers have employed a variety of methodologies to uncover how visitors feel about their time in NPS units. These studies range from basic "rank your trip satisfaction on a scale of one to ten" questions to in-depth qualitative interviews on the personal meanings of wilderness experiences. Below, we begin by discussing general visitor satisfaction research conducted in Alaskan NPS units.

General Visitor Satisfaction

Most social science studies conducted in Alaskan NPS units contain some measure of trip satisfaction. Most basically, respondents are asked to rate the overall quality of their trip experience on a numerical scale. In almost every study, the great majority of respondents indicate very high levels of trip quality (e.g., Swanson et al., 2002). While these findings seem to present good news to the NPS, there are several problems associated with these types of questions. First, classic social psychological studies of cognitive dissonance have shown that people who have just spent considerable time and money to have an experience are motivated to say that their trip was worth their effort (Festinger, 1963). Also, the generality of the judgments provides no information for NPS staff concerning specific management issues.

The Government Performance and Results Act (GPRA) of 1993 required all agencies of the federal government to establish methods to measure their performance. The NPS subsequently developed a program to distribute postcards to visitors that ask them to rate

their overall trip satisfaction. Consistent with earlier research, the great majority of visitors give their visit high scores but it is difficult to relate the results to specific management issues. In addition, the accuracy of the GPRA postcard results is difficult to assess because of sampling and non-response issues.

Some studies have included questions concerning general satisfaction that have been designed to yield better information than the simple "rate your trip" questions. For example, some surveys have asked visitors if they would recommend the NPS unit to others (Swanson et al., 2004a). Others ask respondents if they would return to the NPS unit (XXcitations). These questions collect information about general trip satisfaction in ways that minimize some of the known problems but when considered in isolation they still fail to address *why* visitors are satisfied or unsatisfied with their trips.

Multiple Factors Affect Visitor Satisfaction

In response to the challenges outlined above, more detailed studies were designed to investigate specific factors or events that might the quality of visitor experiences. These more textured investigations of trips to NPS units explored which experiences were most important for visitors and which events may have detracted from their enjoyment.

One of the reasons for studies to analyze the multiple factors involved in recreational trip experiences is to develop indicators of trip satisfaction and standards of trip quality. Such indicators and standards are quantifiable and consistent variables that can be used to predict the quality of visitor experiences.[14] Although many research studies have attempted to develop potential indicators or normative standards of trip quality, few of these studies have specifically focused on trips to Alaskan NPS units (Vande Kamp, Johnson and Manning, 2000). One exception is a recent study of backcountry users in Gates of the Arctic (Kneeshaw et al., 2003).

Visitor expectations have been found to have a large impact on the way that visitors' experiences affect the quality of their trips (see Manning, 1999). Accordingly, studies

[14] For a discussion of indicators and their relevance to recreational social science research, see Kneeshaw et al., 2003 and Vande Kamp, Johnson and Manning, 2000.

examining the effects of trip events on trip quality often ask, a) what visitors expected to experience, b) what they actually experienced, and c) how the relationship between these two factors affected their trip enjoyment.

Most existing research measuring the influence of various factors on trip satisfactions in Alaskan NPS units is conducted using surveys. A few studies have also used qualitative or mixed-methodology research designs.

Survey research. Survey research conducted in Alaska NPS units often ask visitors to rate and/or rank the importance of a list of trip experiences in determining their overall trip satisfaction (e.g. Johnson, 1979; Salvi and Johnson, 1985; Johnson, 1989; Swanson et al., 2002, Swanson et al., 2003; Spang, Vande Kamp, and Johnson, 2004; see Figure X.X). These data allow managers to learn which activities are most important for visitors, but cannot provide the depth and texture of information obtained in qualitative studies. Although some experiences on these lists may be universal across NPS units (such as "good weather") others are specific to certain areas (such as "seeing glaciers"). Qualitative research can be used to both obtain narrative descriptions of the dimensions that affect trip enjoyment and to develop appropriate survey lists for individual NPS units (e.g. Kneeshaw et al., 2003).

Figure X.X
Example of survey question: importance of selected factors on trip enjoyment
From Spang, Vande Kamp, and Johnson, 2004

6. Some activities that were available in the Alagnak River area are listed below. Please indicate how important each activity was for your trip enjoyment during the trip when you were contacted for this survey. *(If you did not participate in an activity, please circle "didn't do".)*

		How important was each activity for your trip enjoyment in the Alagnak River area?				
		↓	↓	↓	↓	↓
A	Viewing wildlife	didn't do	not important	somewhat important	important	very important	extremely important
B	Viewing scenery	didn't do	not important	somewhat important	important	very important	extremely important
C	Fly Fishing	didn't do	not important	somewhat important	important	very important	extremely important
D	Fishing with spinning reel	didn't do	not important	somewhat important	important	very important	extremely important
E	Birdwatching	didn't do	not important	somewhat important	important	very important	extremely important
F	Boating/Canoeing/Rafting	didn't do	not important	somewhat important	important	very important	extremely important

6a. If you participated in 2 or more of the activities listed above, which were most important to your enjoyment of the Alagnak River area? *(Please enter the appropriate letter in each of the blanks.)*

_____ MOST IMPORTANT activity contributing to your experience of the Alagnak River area.

_____ SECOND MOST IMPORTANT activity contributing to your experience of the Alagnak River area.

Qualitative and mixed-method research. Often trips to Alaska, especially to the backcountry, are unique and momentous experiences for visitors. Survey research may fail to capture important aspects of the visitors' full experience. Qualitative research such as unstructured or semi-structured interviews allow respondents to discuss in their own words their experiences in Alaskan NPS units. Qualitative data also allow managers to compare the experiential outcomes they wish to provide to the visitors' perceptions of their experiences (Kneeshaw, Watson and Glaspell, 2004). Some disadvantages of qualitative research studies are that they are relatively expensive, and logistically difficult. Also, when they are not used in conjunction with survey methods, they do not provide quantitative estimates that can be used in statistical analyses.

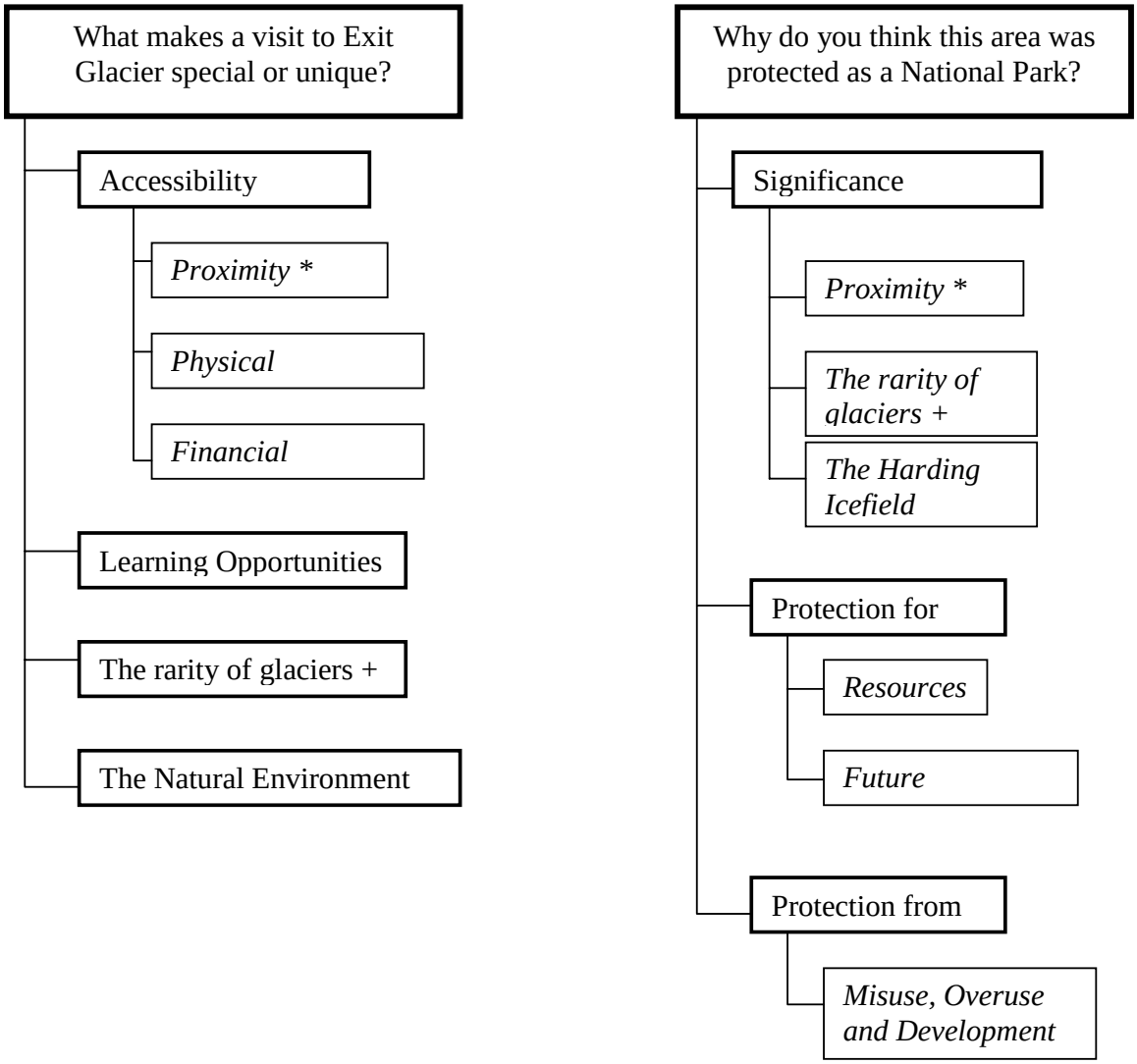
One qualitative study conducted in Alaskan NPS units examined backcountry users to Wrangell-St. Elias (Kneeshaw, Watson and Glaspell, 2004). This study conducted semi-structured interviews of late summer and fall visitors to develop themes of visitor experiences and descriptions of Wrangell-St. Elias.

Mixed method studies combine various methodologies to address research questions. One study employing both qualitative and quantitative research focused on backcountry visitors to Gates of the Arctic National Park (Kneeshaw et al., 2003). The first phase of the study was qualitative and identified five "experience dimensions" of backcountry trips in Gates of the Arctic. The second phase of the study was quantitative and segmented visitors into four groups based on their experiences. The five experience dimensions were connected to specific components of backcountry trips and indicators of trip enjoyment were developed for each experience dimension.

Another mixed-methodology study examined floaters on the Yukon-Charley Rivers (Swanson et al., 2004a). One group of river recreationists was asked to complete a survey regarding their trip and their responses to military overflights. Another response group participated in qualitative interviews on these same subjects. Data from both methods were compared, to see if the results were consistent.

A third mixed-methodology study examined visitors to Exit Glacier and the Harding Icefield trail in Kenai Fjords National Park (Swanson, Vande Kamp and Johnson, 2003). The study used semi-structured qualitative interviews to find common themes in visitors' descriptions of what made their visit special and visitors' descriptions of the reasons why the area was protected as a national park (see Figure X.X, below).

Figure X.X: Summary of Qualitative Interview Findings



* and + represent common themes

Future understanding of visitors' perceptions of trip to Alaskan NPS units would benefit from further studies using mixed-methods. Also, longitudinal studies that measure visitor perceptions of Alaska trips over time might help managers track changes in visitor experiences and determine if they result from changes in the park environment or changes in the visitors. Panel studies with repeated measurement of the same visitors at several times after their trips could also be interesting. Such research conducted in non-Alaska wilderness areas suggests that visitor perceptions may change over time, as initially negative experiences become more positive in hindsight, especially if they make good stories (Patterson et al., 1998; Stewart and Hull, 1992).

Wildlife Interactions

Many people equate the wilderness of Alaska with charismatic mega-fauna, and look forward to sighting and photographing wildlife during their trip. It is therefore not surprising that both survey and qualitative research has determined that the interaction of visitors and wildlife is an important factor in overall trip enjoyment (e.g. Cheek and Field, 1978; Johnson, 1989; Christensen and Watson, 2002).

Based on the importance of wildlife sightings, studies in various Alaskan NPS units have explored the nature and extent of visitor interactions with wildlife, and the way those experiences affect overall trip enjoyment (e.g. Cheek and Field, 1978; Loder and Womble, 1979; Salvi and Johnson, 1985; Johnson, 1989; Christensen and Watson, 2002; Kneeshaw et al., 2003). Nearly all of these studies used surveys. Questions on this topic include asking respondents about their expectations of wildlife sightings, their actual wildlife sightings, and the importance of seeing wildlife for their overall trip enjoyment.

Although people enjoy seeing animals, such encounters may have negative effects on wildlife. As a result, research has also been conducted in Alaskan NPS units to determine if such interactions either negatively affect animal species or put people in danger. For example, studies have addressed the response of wildlife to boats in Kenai Fjords (Murphy and Hoover, 1981). Also, human and bear interactions have been studied

in Denali (Del Vecchio et al 1992) and in Katmai (Smith and Johnson, 2004; Olson, Gilbert and Fitkin, 1990).

Managers can use information from these various studies to balance visitor preferences of viewing wildlife with the biological impact that such interactions may have on wildlife populations. NPS staff may also manage visitor expectations, by informing potential visitors as to the amount of wildlife that they are likely to see during their trip.

Evidence of Past Human Activity

A second factor that is commonly researched in relation to trip enjoyment is evidence of past human activity in the form of damage to biological resources (such as unofficial way-trails), litter, or campfire rings. Sightings of such evidence have been shown to negatively affect the nature of visitor experiences, especially in backcountry areas where recreationists expect a wilderness experience (e.g., Womble et al., 1980; Johnson, 1979, Swanson et al., 2002). Data on this topic are therefore useful to managers both to assess the biological impact of visitation and to learn about the quality of trip experiences.

Again, most social science on this topic has been survey research. Questions ask respondents to report the evidence of past human activities they noticed during their trip, usually by choosing from a list of potential resource impacts. Respondents may also be asked if seeing such impacts affected their trip enjoyment. A recent study of overnight backpackers in Denali National Park found that a majority of users (51.6%) reported being very bothered by seeing litter in the backcountry (Swanson et al., 2002).

Interactions between Area Users

The factor of visitor experience that has received by far the most research attention is the level of interaction between people who use a particular unit. These interactions may be between recreational users with similar trip motivations, between recreational users with different trip motivations, or between recreational and non-recreational (e.g., subsistence) users. Interactions can be positive, negative or neutral for the people involved. Interactions are also classified as symmetrical (all parties having the same type of reaction) or asymmetrical (parties experiencing different types of reactions). For

example, a recreational backcountry wilderness hiker may see an aircraft engaged in flightseeing. This interaction may bother the hiker but not bother the airborne user. Such an encounter would represent an asymmetrical conflict between recreational users with different trip motivations.

Research investigating the ways that experience quality is affected by interactions between area users is motivated in part by the NPS mandates to address the carrying capacity or user capacities of NPS sites. Determining the extent and nature of user interactions helps managers determine how many people at one time can obtain quality experiences in a particular area. Such research is often conducted in the context of planning frameworks such as Limits of Acceptable Change (Stankey et al., 1985) or Visitor Experience and Resource Protection (National Park Service, 1997). The research is generally intended to, a) help managers designate particular measures of visitor interaction as *indicators* of the impact of visitor use levels on experience quality, or b) to set *standards* for the level of interaction at which visitor use conditions require management intervention .[15]

One method of collecting data about interactions with other users is to describe different levels of visitor use or interactions using text or pictures and to then ask for visitor reactions to the described conditions (c.f., Dear, 2001, Vande Kamp and Manning, 2004[Kenai Vol 1, Chap. 3]). Such methods offer several advantages, but their primary disadvantage is that the research literature has not established that respondents' reactions to the described conditions correspond to their reactions if they were to actually experience those conditions. One study at Kenai Fjords National Park attempted to test the relationship between visitor reactions to actual levels of use and levels of use described using photos, but the actual levels of use were too low to support strong conclusions about consistency (Vande Kamp and Manning, 2004 [same as above]).

[15] For a comprehensive discussion of carrying capacity, VERP frameworks, and indicators of visitor experience, see Vande Kamp, Johnson, and Manning, 2000.

Interactions between similar recreational users. Most research on interactions between similar users has explored issues of crowding— when and why do visitors begin to feel crowded during their trip? It is generally assumed that visitors desire a limited number of encounters with other people, and that trip satisfaction will decrease if that number of encounters is exceeded (Vande Kamp, Johnson and Manning, 2000). At the extreme, high levels of crowding could lead visitors to stop visiting (i.e., could displace visitors).

Research addressing potential crowding in Alaskan NPS units has been conducted since the late 1970s. Most of this research has been surveys of wilderness users. The most straightforward survey questions simply ask respondents directly if they felt crowded during their trip. Respondents are also often asked to report the number of other parties they encounter each day and the size of those parties. Other questions include how many nights (if at all) respondents camped in sight of other parties. As with wildlife sighting research, visitors may be asked how many people they preferred to see, how many they expected to see, and how these views corresponded to their actual trip experience.

Wilderness areas have been the focus of much of the research on visitor interaction partly because of the mandate to provide visitors to these units with opportunities for solitude.[16] Also, wilderness users are generally less tolerant of visitor encounters (Vande Kamp, Johnson and Manning, 2000). Most studies conducted in wilderness areas of Alaskan NPS units found little evidence that visitors felt crowded (Johnson, 1979; Womble, 1979; Salvi and Johnson, 1985; Carroll and Johnson, 1985; Swanson et al., 2002). One exception was recreational hunters in Gates of the Arctic, who often reported dissatisfaction with the number of other parties they encountered during their trip (Christensen and Watson, 2002).

Finally, research conducted in Alaskan NPS units has illustrated that not all interactions between recreational users with similar trip motivations are negative. For example, early

[16] It is important to note that the exact meaning of "solitude" is difficult to describe and has been the subject of recent discussion. For example, feelings of solitude may differ from related feelings of aloneness, remoteness, or loneliness.

research of backcountry hikers on the Chilkoot Trail in Klondike National Historical Park found that interaction between groups that met on the trail was rated positively (Womble, Wolf and Field, 1978). More recent research indicates that visitors to Alaskan NPS wilderness highly value certain types of visitor interactions (Glaspell et al., 2003). However, the positive nature of visitor encounters would likely fade if the frequency of such encounters increased (Vande Kamp, Johnson and Manning, 2000).

Interactions between dissimilar recreational users. There have been fewer studies in Alaskan NPS units focused on the interactions between dissimilar recreational visitors. These studies often have two main objectives: to describe the nature of interactions and to evaluate how visitors felt about the encounters.

Of the studies that exist, the majority address potential conflicts between recreational visitors using different modes of transport. For example, one study of overnight backcountry users in Denali investigated the responses hikers had to flightseeing aircraft (Swanson et al., 2002). Overall, backcountry users reacted negatively to flightseeing, with three-quarters of respondents indicating that they preferred not to hear or see any aircraft during their trip. Between 50% and 60% of survey respondents reported some annoyance during their trip due to the aircraft, while 45% indicated that the flights detracted from their overall experience.

An earlier study of backcountry users in Glacier Bay also found that hikers were disturbed by the motorized aircraft and watercraft used by other visitors (Salvi and Johnson, 1985). Respondents indicated that the number of watercraft and aircraft seen represented the greatest contribution to feeling crowded during their visit. Hikers indicated they were most disturbed by the noise created by watercraft and by small planes. Also, tour boat passengers in Glacier Bay consistently reported that even small numbers of aircraft were disturbing (Manning, Johnson, and Vande Kamp, 1994).

Although several studies have shown conflict between dissimilar recreational users, not all such interactions are negative in nature. For example, a survey of tour boat passengers

in Glacier Bay indicated that they enjoyed seeing people kayak and canoe in the bay (Johnson, 1989).

Interactions between recreational and non-recreational users. A third type of human interactions that occur in Alaskan NPS units occurs between recreational and non-recreational users. For example, the U.S. military is allowed to conduct limited overflights in some NPS airspace to train pilots. A recent study examined if various types of recreational users were bothered by these overflights (Swanson et al., 2004a). Part of this study surveyed recreational river floaters in the Yukon-Charley Rivers National Preserve. One group of respondents was given a survey, while a second group participated in qualitative interviews. The effect of overflights on visitor experiences was complex and varied across visitors.

Another potential type of encounter that may occur in Alaskan NPS units is between recreational users and subsistence users. Research concerning these types of encounters is discussed below in Section 1.4 (*Research Concerning Traditional Use*).

Summary and Avenues for Future Research

Research on trip perceptions covers a diversity of topics, including visitor expectations, preferences, experiences, and evaluation. Much of this research is motivated by direct mandates from the NPS administrative context. Studies that ask visitors to generally indicate if they were satisfied by their trip do not provide managers with in-depth information; more complete studies explore particular trip experiences and their influence on visitor enjoyment.

Particular aspects of visitor experience that have been found to influence trip quality include wildlife sightings, interactions between users, and evidence of prior human use.[17] Of these topics, the most research attention has been given to the interactions between recreational visitors. To date, little research attention has focused on interactions between

[17] Note that visitor expectations concerning these factors generally interact with actual experiences to affect trip quality.

dissimilar users, such as encounters between users employing different modes of transport.

Most research on trip perceptions has used surveys to provide managers with specific information. However, such studies may overlook qualities that make trips to Alaska exceptional experiences for visitors. Qualitative studies provide a more holistic description of visitor experiences, but are more expensive and difficult to analyze.

Future areas of research include:

- Qualitative studies providing more complex representation of visitors' perceptions of their experiences.
- Studies using mixed methodologies, including longitudinal research, to better understand the visitors' evaluations of their trips.
- Selecting indicators for the trip quality of wilderness users and other specific user groups.

1.3.6 Why do Visitors Come to Alaskan NPS Units?

The research in this section examines the reasons that motivate people to visit NPS units in Alaska. Trip motivations can be defined as the anticipated psychological outcomes visitors expect from engaging in a particular activity in a specific setting (Swanson et al., 2002). The variety of motivations for visiting Alaskan NPS units that were found in the social science literature include: partaking in outdoor recreation, enjoying solitude, experiencing natural beauty, spending time with family, trying something new, having adventures, becoming better educated, and visiting a part of Alaska.

Visitor motivation is a complex subject because a wide range of motivations may lead people to visit Alaskan NPS units. Some may be explicit -- that is, motivations that visitors understand and are able to articulate in interviews or on surveys. Other motivations may be implicit -- not as easily recognized by respondents or researchers. Some research suggests that visitors may misunderstand what they desire from a trip experience. For example, people may say they are motivated to go camping for a peaceful

and relaxing time, but actually enjoy unexpected happenings that end up making good stories for their friends back home (Patterson et al., 1998).

There is some conceptual overlap between trip motivation and trip perceptions, because the motivations that bring people to an Alaskan NPS unit are often related to the experiences they have and the way they evaluate those experiences. Later we will discuss how this conceptual overlap can complicate the interpretation of research results.

Although motivational factors are often assumed to be positive, the factors that discourage people from visiting Alaskan NPS units also play a role in trip motivation. The differences between the motives for first-time and repeat visits are also an important aspect of trip motivation. Very few studies have explored these themes.

By understanding trip motivations and the experiences people seek from NPS units, managers can assess whether those motivations are consistent with their unit's purpose and either maximize opportunities to satisfy those motivations, or encourage visitors to seek those outcomes elsewhere. Correlating data on trip motivation with demographic descriptions or trip evaluation data provides a more textured view of visitors. The resulting knowledge of what motivates certain groups to visit NPS areas can allow the NPS to target appropriate outreach materials to specific populations.

Research Methods

The complexity of trip motivation makes it difficult to study. Social science research has attempted to describe trip motivation both through quantitative and qualitative methodologies.

Visitor surveys are often employed to measure trip motivation. Survey questions may ask respondents to consider a list of factors and indicate the importance of each one in motivating them to visit the NPS unit. Surveys may also ask visitors to rank the most important factors in motivating their trip. When conducted after visitors' trips, such surveys have not always clearly distinguished between questions focused on trip

motivation and those focused on trip experiences. For example, the question, "How important were each of the following factors in your trip?" is ambiguous. Better questions might ask, "How important were each of the following factors in motivating you to make this trip?" and "How important were each of the following factors in determining the quality of your trip experience?" (e.g. Johnson, 1989).

Another challenge of survey research is to present respondents with a list of possible motivations that is comprehensive without being overwhelming. Historically, the recreational experience preference (REP) scale developed by Driver and associates has a long history of use in measuring motivations for recreational experiences (Driver, 1976). One drawback of this scale is the large number of items it contains. Later research has identified certain factors of the REP scale that were most relevant to recreational activities in NPS units (Johnson, Foster and Kerr, 1990). Visitor surveys in Alaskan NPS units have used modifications of the abridged REP list to measure visitor motivations (e.g. Swanson et al., 2002; Swanson, Vande Kamp and Johnson, 2003). An alternate method of generating site appropriate lists of visitor motivations is to conduct exploratory qualitative research.

Data from surveys of trip motivations can be analyzed in a variety of ways. Basic frequency counts can indicate the most prevalent motivations reported by visitors (e.g., Johnson, 1989). A more complex statistical technique called cluster analysis can be use to segment visitor groups based on motivation (Swanson et al., 2002). The resulting clusters of respondents correspond to market segments—groups of people who are similar in the importance they place on different trip motivations. Market segments can be compared on a variety of variables including demographic characteristics and trip satisfaction. Another relatively complex statistical technique called factor analysis can be used to find groups of survey questions that appear to measure the same trip motivation (Swanson et al., 2002). Any or all of these statistical analyses can assist researchers in interpreting underlying dimensions of visitor motivation.

Qualitative research methodologies such as semi-structured interviews can also be used to measure trip motivations (e.g., Kneeshaw, Watson and Glaspell, 2004). Asking respondents to explain in their own words why they came to Alaskan NPS units can reveal interesting themes that might be overlooked in survey research.

For both quantitative and qualitative research, it is important to note that respondents may report different motivations before their trip and after their trip. Therefore, researchers should distinguish between pre-trip (entrance) and post-trip (exit) respondents. Comparing trip motivation data between pre-trip and post-trip respondents represents an interesting area for additional research concerning the dynamic nature of trip evaluation.

Existing Research

Regional Research

There has been little regional research exploring motivation for visiting Alaskan NPS units. Generally, trip motivations are best described for specific units or sites, as Alaskan NPS units offer a variety of recreational experiences and opportunities. However, unit-specific research is often complicated by the difficulty of separating many visitors' motivation for their whole Alaskan trip from their motivation for visiting a particular NPS unit.

The comprehensive survey of the American public conducted by the NPS asked respondents what motivated them to visit (or not) national parks (NPS, 2002). The survey was general for all NPS units—not only those in Alaska. The most frequently cited trip motivations for both Alaska residents and for all U.S. respondents were to go sightseeing and to vacation with others. The survey also asked people who had never visited NPS units what prevented them from visiting. The most common responses given were that parks were too far, that people were too busy, and that there was not enough information available (ibid). Data from the survey were also correlated with the race and ethnicity of respondents (Solop et al., 2003). This analysis determined that the ranking of reasons for not visiting NPS units was generally consistent for whites, Hispanic Americans, and

African Americans (ibid). Similar analyses might look for differences in the motivations described by Alaskan residents and non-residents.

A different study examined the trip motivations of all visitors to south-central Alaska—not just those people who visit NPS units – and found that visitors were increasingly motivated to visit Alaska in order to experience adventure-oriented recreation (Colt et al., 2002).[18]

There are, several research areas that might benefit from regional research. First, social science research could explore if there are common themes in trip motivation related to the desire to visit Alaska or Alaskan wilderness areas. Alaska is often viewed by U.S. residents as the "last frontier," and may therefore hold a certain symbolic meaning for out-of-state visitors (Brown, 2002). Some existing research supports this regional motivation. For example, a study conducted in Wrangell-St. Elias National Park found that some respondents mentioned "seeing Alaska" as one of their primary trip motivations (Kneeshaw, Watson and Glaspell, 2004). Also, a study of Glacier Bay tour boat passengers found that "seeing a part of Alaska" was the 4th most important trip motivation (Johnson, 1989). However, surveys of visitors to Alaskan NPS units rarely include "seeing Alaska" on their lists of possible trip motivations.

Second, and finally, visitor motivations might be compared across a range of NPS units in Alaska to help develop a Regional Opportunity Spectrum. Such a regional outlook would help ensure that people with varying motivations for visiting NPS units in Alaska have adequate options available for their trips.

Park Level Research

Most studies of trip motivation in Alaskan NPS units have used survey methods (e.g. Swanson, Vande Kamp and Johnson, 2003; Swanson et al., 2002; Christensen and Watson, 2002; Hoffman, 1998; Littlejohn, 1994; Johnson, 1989). These studies generally

[18] The desired "soft-adventure" trips may represent different things to different visitors, and are marketed in multiple ways by commercial operators. See the paper by Colt for a more in-depth discussion of soft-adventure trips in Alaska.

provide basic description of trip motivation, such as the motivations most frequently cited by respondents.

In addition, some of these studies examined trip motivation using cluster analysis and factor analysis. For example, a study of overnight backcountry visitors to Denali National Park found six different visitor market segments defined by similarity in their trip motivations (Swanson et al., 2002). A survey of visitors to the Exit Glacier area of Kenai Fjords National Park also analyzed trip motivation data using cluster analysis and factor analysis (Swanson, Vande Kamp and Johnson, 2003).

Overall there has been little qualitative research investigating motivations for visiting NPS units in Alaska. One exception is a recent study interviewing backcountry visitors to Wrangell-St. Elias (Kneeshaw, Watson and Glaspell, 2004).

Summary and Avenues of Future Research

Trip motivation research measures the various reasons that lead people to visit NPS units in Alaska. Trip motivation is a complex subject that is difficult to measure. Both qualitative and quantitative research methods have been used. Survey data on trip motivation may be analyzed using cluster analysis to separate visitors into market segments, or factor analysis to determine the questionnaire items that measure the same motivational factor. Most of the research conducted in Alaskan NPS units has used survey methods. Future research on this topic might include:

- Designing mixed-method studies that include exploratory research on possible trip motivations for particular NPS units or activities.
- Investigating the factors that discourage people from visiting Alaskan NPS units
- Investigating the differences between the motivation of first-time and repeat visitors
- Investigating differences in trip motivation data from pre-trip and post-trip research.

1.3.7 What do Visitors Feel About the NPS?

Some social science research has investigated what people think about the NPS and its management policies. Usually the research asks for opinions about existing management policies, hypothetical management policies, and/or the institutional values and goals of the NPS. Research that describes the number and nature of interactions between visitors and NPS staff is also included in this category.

Research concerning NPS policies sometimes asks visitors questions that indicate whether they correctly understand NPS philosophy or policies; if visitors show low understanding, managers can take additional steps to provide accurate information. Research using questions that ask whether visitors support NPS philosophy or policy can help NPS managers anticipate whether policies will garner public support. Finally, questions that ask visitors for their perceptions of the NPS as an organization can assist managers in fostering more positive visitor interactions, and may ultimately increase visitor satisfaction. One recent study, for example, suggests that the satisfaction of backcountry visitors to Gates of the Arctic is closely linked with whether or not they had trust in the National Park Service (Glaspell et al., 2003).

Basic summaries of visitor perceptions of the NPS and its policies may serve all of the purposes outlined above. However, the data can also be correlated with other research variables to provide a more sophisticated understanding of how different groups of visitors feel about the NPS. For example, it may be one thing to know that 50% of visitors support backpacking permits, and another thing to know that 75% of backpackers support backpacking permits.

Research Methods

Visitor opinion data are gathered using a variety of methodologies, including surveys and qualitative interviews. Some studies combine quantitative and qualitative methodologies. Respondents may be asked if they generally agree with management actions, such as removing invasive species from NPS lands. More targeted questions ask respondents

about specific scenarios in specific units, such as imposing group size limits for hiking parties in Denali. Some surveys ask respondents to rate various hypothetical management options.

More subjective questions sometimes ask respondents if they feel the NPS shares their values, or if they trust the NPS. Data on visitor opinions of the NPS have been analyzed through statistics including regression modeling (Glaspell et al) and stated-choice analysis (Swanson et al., 2002). In the future, additional methodologies could be employed, including participant observation research, discourse analysis of relevant media sources, and field experiments.

When viewing the results of studies concerning the NPS and its policies, one should note that data from the Comprehensive survey of the American Public suggest that there may be significant differences between perceptions of the NPS among Alaskan and out-of-state respondents (NPS, 2003, see discussion below). Also, wilderness and non-wilderness visitors may differ significantly in their opinions of appropriate management policies.

One limitation of surveys that sample visitors is that they self-select for people who have decided to visit NPS units. People who feel very negatively about the NPS or its policies would likely not visit NPS units, and thus would not have the opportunity to participate in the survey. For this reason, surveys of populations including both visitors and non-visitors could provide public perception data that could be applied to issues not addressed by studies of NPS visitors.

Existing Research

Regional Research

The Comprehensive Survey of the American public, conducted by the NPS in 2002, included several questions concerning opinions about the NPS in general and about specific NPS management issues. Alaska residents' responses were examined separately and compared to the national averages. This study revealed some interesting differences

between Alaskan residents and residents in the lower 48 states. For example, question three of the phone survey was open ended and asked: "Please tell me what first comes to mind when you hear the words 'National Park System'" The results from that question are reproduced in the tables below. As illustrated, Alaska residents were more than twice as likely to associate the NPS with government bureaucracy.

Table X.X
What first comes to mind when you hear the words 'National Park System'
From the Comprehensive Survey of the American Public, Alaska report
General Public, All respondents (from Table 3.1)

	Alaska	National
Beauty, nature, flora, fauna	28%	29%
Named a specific park	12%	21%
National heritage, landmarks, tradition, parks, units	12%	14%
Recreation	9%	7%
Government, bureaucracy, management by federal government	15%	7%
Care, protection, preservation	9%	7%
Vacation, friends, family, time away, fun	2%	4%
No images, nothing, no ideas	2%	4%
Smokey the Bear, Yogi Bear, park hats	4%	3%
Serenity, peace, quiet	1%	1%
Traffic, congestion, crowds	2%	1%
Logging, deforestation, wood-cutting	--	--
Buildings, structures, architecture	--	--
Costs, fees, tourist traps	2%	--
Don-t know, can't answer	2%	1%
	N=490	N=3439

Additional differences were reported. For example, when asked "Are you familiar with any attempts by the National Park Service to encourage public participation in park management decisions?" 23% of the general public in Alaska said yes, compared to the national average of only 8% (N=505, 3497). The Alaskan public was also reported as more than twice as likely to attend a public meeting, workshop, or hearing sponsored by the NPS compared to the general U.S. population. Alaska residents also reported a less positive report on how the NPS addressed public concerns raised at these meetings, as illustrated by Table X.X below. The table reports data from question 17b on the survey, which asked: "Do you think the National Park Service did an excellent, good, fair, or poor job responding to the interests of people as expressed in the public meeting, workshop, or hearing you attended?"

The NPS survey also asked respondents about their opinions regarding park fees, the quality of service that NPS employees give to visitors, the national park reservation system, and how to best allocate revenues raised by park entrance fees. Overall, the responses of Alaskan residents to such questions often differed significantly from the national average. These results suggest that public relations issues in Alaska are likely to be different than those of NPS units in the lower 48 states. Other studies have also reported that Alaska residents often hold different ideas about parks, federal government, land management and wilderness than people living in the lower 48 states (Brown, 2002).

Table X.X
How well the NPS responded to the interests of people in public meetings, workshops, or hearings
From the Comprehensive Survey of the American Public, Alaska report
From Table 17b.1 (General public)

	Alaska	**National**
Excellent	14%	14%
Good	23%	70%
Fair	20%	13%
Poor	40%	3%
Don't know / no opinion	5%	--
	N=43	N=46

Another form of regional research in this topic is to investigate how the American public feels about NPS management of Alaskan NPS units. As a public entity, the National Park Service is entrusted to preserve resources for the future generations of all Americans. Because of Alaska's unique identity as America's "last frontier", often people who have never been to Alaska have strong opinions on how NPS lands and resources should be managed. This interest is often described as an "existence value" for Alaskan wilderness that is widely spread among U.S. citizens who will likely never experience the wilderness first-hand. If the opinions of all citizens are to be considered in the management of Alaskan NPS units, social science research will be useful to systematically measure those opinions.

Park Level Research

Many social science studies conducted in individual Alaskan NPS units contain a brief section asking respondents to comment on some aspects of NPS management. The emphasis on these data varies from study to study, as does the extent to which the data are explored to reveal larger themes and trends. Some of these data are specific to individual units, such as policies regulating touching the glacier at Exit Glacier in Kenai Fjords. Other data, though collected from a specific unit, may be cautiously applied to management issues in other similar Alaskan NPS units, such as the level of support for invasive species management. Many of these studies asked visitors questions about hypothetical management scenarios. As mentioned above, such data should be examined for difference across subpopulations (e.g., local versus non-local residents and wilderness versus non-wilderness users).

Numerous social science studies in Alaskan NPS units report that many visitors support limited management of recreational opportunities, such as party size limitations or permit rationing (e.g., Studebaker and Womble, 1979, Carroll and Johnson, 1985, Swanson et al., 2002). A recent study in Denali National Park used stated choice analysis to conclude backcountry visitors were usually willing to trade away some freedoms in order to preserve the wilderness character of the park (XXCite Lawson et al.).

The extent to which visitors support NPS regulation of their activities, and the type of management policies supported, varies depending on the specific issue. For example, recreational hunters in the Gates of the Arctic generally opposed expanding NPS management (Christensen and Watson, 2002). Respondents from the commercial tour industry also have less enthusiasm for expanded NPS management regulations (Kneeshaw et al., 2002).

One recent study correlated the level of trust that visitors reported having in the NPS to trip satisfaction (Glaspell et al., 2003). The study collected data from backcountry visitors to Gates of the Arctic and determined through regression modeling that trust in

the NPS had a positive influence on three of the five experience dimensions they identified.

One aspect of NPS management unique to Alaska is the mandate to allow subsistence use in many NPS units. Few studies have assessed the opinions of recreational visitors concerning subsistence use. Dear (2001) found that the majority of people (61%) interviewed in a study of recreational backpackers in Gates of the Arctic National Park indicated that they accepted subsistence use in the park, while 14% did not accept subsistence users. However, a variety of additional factors complicated these views, such as the degree to which recreational visitors disapproved of mechanized vehicle use by subsistence users. Potential conflicts between recreational and subsistence are discussed further in Section 1.4.2 below.

Summary and Avenues of Future Research

Recent phone survey data suggest that Alaska residents have different opinions of the NPS compared to people in the lower 48 states. This finding suggests that managers of Alaskan NPS units may face unique issues regarding public outreach and support for policies. Wilderness and non-wilderness users may also hold different opinions on appropriate management techniques. Recent data reports that the degree of trust visitors have in the NPS influences their trip satisfaction. Future avenues of research could include:

- Using mixed methodologies to explore ideas of trust and other perceptions in greater detail.
- Surveying broad populations that include both visitors and non-visitors regarding their opinions of NPS policies.
- Integrate the perceptions of subsistence users and related management issues.
- Conduct strong [regional] baseline studies to track if perceptions change with time.

1.3.8 How Well Do (or Might) Management Actions Work?

The research we have reviewed to this point has generally been conducted to help managers formulate park policies and regulations. However, research can also be used to determine whether policies meet their intended objectives. Usually such assessment

occurs after policies are put in place, but some a priori studies of management policies are used to assess a range of possibilities in order to determine which are most promising. Thus, general examples of the research questions described in this section include, "Do people comply with park unit management policies?" and "Which of the options for managing visitor behavior are most likely to achieve desired outcomes?"

A wide range of actions is available for use by managers of NPS units, and a variety of theoretical frameworks, case studies and introductions to general management have categorized and described those actions.[19] One framework divides potential management actions into indirect or direct strategies. Indirect strategies influence visitor behavior through information or educational materials. In contrast, direct strategies use rules and regulations to influence visitors. Generally, visitors prefer indirect management strategies (Manning, 1999). However, direct management strategies such as signs that threatened fines and the presence of uniformed personnel have been shown to be much more effective deterrents of off-trail hiking at Mount Rainier National Park, and visitors generally felt that uniformed personnel had a positive impact on their trip experience (XXJohnson and Swearingin, 1989?).

Social science can be useful to help managers decide when to employ direct strategies by providing information about both the relative effectiveness of the available actions and visitors' opinions concerning the intrusiveness of those actions. Of course, social science is not the only influence on managerial actions. Some NPS units have mandates that limit the available management options. For example, Gates of the Arctic has mandates to minimize the regulation of visitor activities.

This section does not discuss biological research measuring the success of management actions intended to preserve natural resources. This section also does not discuss visitor perceptions or opinions of NPS policies, as this topic is discussed in section 1.3.7. It is important to note, however, that the two topics are closely related because visitors who

[19] For a good general introduction to management issues in outdoor recreation, see Manning, 1999, Chapter 12 (pp238-277).

believe that a park policy is unfair are less likely to comply with it (XXCitation from NC lit review).

Research Methods

Research methods investigating management effectiveness include, 1) surveys of NPS managers to record their opinions concerning various management actions, 2) visitor surveys that ask respondents questions related to management effectiveness, such as "Were you aware of this rule?" or "Did you comply with this regulation?" However, the validity of these survey methods is questionable. Managers do not always have accurate perceptions, and visitors prefer not to disclose their ignorance of rules or their rule infractions, even when they are assured of confidentiality.

Field experiments are a particularly useful method of evaluating management effectiveness. Field experiments usually compare the behavior of a control group of visitors with the behavior of an experimental visitor group that was exposed to the management action of interest (Manning, 1999; see Swanson et al, 2002 for an example).

In reviewing the results of studies evaluating park management actions, it is important to assess whether significant portions of the visitor population are affected differently. For example, providing information may be less effective for local park users who are familiar with the area than for non-local users. Similarly, it is important to search for sub-group differences in any negative impacts of management actions.

Existing Research

Regional Research

Most of the research evaluating the results of NPS management actions has been conducted in individual NPS units. Units tend to have their own sets of management concerns and priorities. Thus, there is no one universal approach to management. There may be, however, some management practices that might be evaluated for use across a range of Alaskan NPS units. For example, the effectiveness of reserved departure times in maximizing solitude in river trips might be studied at a number of parks to assess

whether the results could be generalized to the region. Such multi-unit studies could be a valuable aspect of future social science research in Alaska.

One national study surveyed managers of all NPS wilderness areas. Respondents were asked to indicate from a list of over 100 management practices which they used and which they found most effective (Marion et al., 1993; Manning et al., 1996). Selected results from this survey are illustrated in Box X.X below. Such research provides insight into current management themes and trends in NPS wilderness areas. However, some of the actions are not be suitable for all NPS unit in Alaska, and it is not clear whether Alaskan wilderness has characteristics that limit the degree to which the results can be applied in Alaska.

Box X.X

Recreation Management Practices Reported By Managers As Most Effective

Adapted from Manning, 1999: Table 12-6

Campsite impacts:	Designate campsites Prohibit campfires Provide campsite facilities Restore campsites Limit group sizes Campground reservation system
Trail impacts:	Maintain and rehabilitate trails Use impact monitoring system Use formal trail system and plan Implement quotas on amount of use
Wildlife impacts:	Temporarily close sensitive areas Regulate food storage and facilities Provide user education programs Restrict pets Provide workshops for commercial outfitters/guides
Water impacts:	Provide primitive toilets at high-use sites
Visitor crowding: and conflicts:	Implement quotas on amount of visitor use Control access to backcountry w/ visitor transportation system

Another national study estimated the extent and impact of visitor noncompliance in the NPS (Johnson and Vande Kamp, 1994). Park managers from most units in the NPS were surveyed, including most Alaskan units. Visitor noncompliance was estimated to have very large economic impacts.[20] In addition, managers had no consistent perspective on the preferred methods of deterring noncompliance.

Park Level Research

Although a variety of NPS units have conducted research evaluating the effectiveness of various management actions (Manning, 1999), there has been little such research conducted in Alaska, and most has focused on the provision of information.

One study of Denali backpackers investigated whether providing visitors with information about flightseeing aircraft limited the impact of those aircraft on trip enjoyment (Swanson et al., 2002). During a pre-trip interview, about half the subjects were given information about flightseeing activities in the area, while the other subjects were not given any of this information. All respondents were then given a post-trip survey.

The results showed that 60% of the respondents who were informed of the overflights reported that they were annoyed by them, compared to only 40% of those respondents who were not informed beforehand of the flights. These data, as well as more detailed analyses, suggested that informing visitors about the flightseeing overflights would be ineffective or counterproductive in reducing the impact of the flights on visitor enjoyment.

In order for a regulation to alter behavior, it must be effectively communicated to visitors. A survey of backcountry users in Glacier Bay National Park found that approximately two-thirds of respondents were aware of management policies against the use of fossil

[20] Why people follow rules and why they don't has been the focus of much research in psychology and social psychology. Few of these research studies specifically investigate rule compliance in outdoor recreational areas, and even fewer study visitors to NPS units.

wood for firewood and policies prohibiting visits to certain bird rookeries during nesting season (Johnson, 1979; Salvi and Johnson, 1985). A similar survey of backcountry users in Denali National Park showed that over 70% of respondents knew about a variety of the park's management policies (Swanson et al., 2002).

We found only two Alaskan research studies that evaluated management strategies other than providing information. One study measured the degree of permit compliance among backcountry users in Denali National Park and found that 7% of respondents did not comply and 30% of respondents partially complied with permit regulations (Plager, 1982). The second study investigated how likely visitors would be to use a variety of transportation system options being considered for the Exit Glacier fee area at Kenai Fjords National Park (Giraud, 2004). Managers will consider these data in deciding how to best design and implement the proposed transportation system.

A final area in which the assessment of effectiveness is particularly important to managers is the area of visitor safety. Although the NPS recently published an extensive literature review of research on NPS visitor safety (Tuler, Golding, and Krueger, 2002), we found no social science research specifically investigating actions related to visitor safety in Alaskan NPS units. The closest thing we found to this type of research was a study commissioned by the U.S. Congress to examine the costs of backcountry rescue in Denali National Park (US, 2000).

Summary and Avenues of Future Research

Social science research studies can evaluate how selected direct and indirect management actions influence visitors' behavior and experience quality. Research methodologies in this area include manager surveys, visitor surveys, and field experiments. To date, little research on this topic has been conducted in Alaskan NPS units. While some regional research assessing the effectiveness of some types of management actions may be useful to Alaskan NPS managers, each individual NPS unit or site also presents unique conditions for managers to consider. Future research in this area may include:

- Developing a forum for managers of NPS units in Alaska to share their experiences and opinions.
- Conducting a survey of managers to identify common visitor-management problems that could be the focus of research intended to identify effective management actions.
- Conducting literature surveys to assess alternative actions that might most effectively address various issues.

1.4 Research Concerning Traditional Use

1.4.1 Studies Describing Traditional Use

The earlier discussion of the administrative context of social science described the direct mandates to study subsistence and other traditional uses, and briefly mentioned that the majority of existing research has sought to describe basic aspects of traditional use. Examples of research questions commonly addressed by the existing research include:

- What types of traditional activities have occurred in the NPS unit (recently and in the past)?
- Where have traditional activities taken place (recently and in the past)?
- Who takes part in the activities?
- How are the activities significant in the local cultural context?

Research focused on subsistence use has generally focused on a very similar, but more specific set of questions. Typical research questions focused on subsistence uses include:

- What types of resources have been harvested (recently and in the past)?
- How much has been harvested (recently and in the past)?
- Where have harvest activities taken place (recently and in the past)?
- Who harvests resources?
- How are resources distributed in the community?
- How are resources used?

A large number of ethnographic studies and other surveys have been completed in the past 25 to 30 years to answer questions about traditional use in Alaskan NPS units. The questions listed above illustrate how the studies of general traditional use and studies focused on subsistence in particular are so conceptually intertwined that in practice they serve as a single body of knowledge. Due to budgetary and time constraints we did not review this extensive literature. We do, however, believe that information contained in this literature is important to help NPS managers formulate effective policies concerning subsistence and other traditional uses, and suggest that the review currently in preparation (Callaway, 2004) will serve as an important resource.

Some studies of subsistence have been used to estimate the economic value of subsistence harvests and the role of subsistence in Alaskan rural mixed subsistence-market economies. Section 1.5 below describing economic research and section 2.2.1 in

the discussion of administrative context above describe or summarize several such studies.

An ongoing program of descriptive research is necessary because many subsistence communities have not been described, and in others the studies were conducted so long ago that they may not represent current practices in the evolving practice of subsistence.

1.4.2 Examining Interactions Between Traditional and Recreational Users

Studies describing the basic characteristics of both traditional and recreational use (e.g., where, when, how much use?) are of critical importance, but studies that measure how commonly traditional and recreational users interact, and that explore both groups' perceptions of those interactions are also crucial. As discussed previously, NPS managers must balance mandates to provide opportunities both for recreational and for subsistence use in designated NPS units.[21]

Although we did not conduct a systematic review of the literature, we are aware of only a few studies focused on traditional users' that were specifically designed to investigate interactions with recreational users (e.g., Wolfe, 1989, Spaeder, Callaway, and Johnson, 2003).[22] The rarity of such studies may be explained by a combination of two factors: 1) the long-standing research focus on basic description of traditional use, and 2) the presence of Subsistence Resource Commissions and other less formal relationships with NPS managers that serve as a mechanism for subsistence users to affect management policy (see Section 2.2.1 in the discussion of administrative context above).

There have been a few studies of recreational users of Alaskan NPS units that investigated interactions with traditional users. One study analyzed recreationists' understanding of and reactions to subsistence use in Gates of the Arctic National Park (Dear, 2001). The majority of people (61%) interviewed in the study indicated they

[21] The technical report by Robert Muth provides a comprehensive overview to ways in which conflicts between recreational and subsistence wilderness users may be understood, analyzed and addressed (1995).
[22] A study currently being planned that concerns traditional users' perceptions of recreational use on the Alagnak River is a notable exception.

accepted subsistence use in the park, while 14% did not accept subsistence users. However, a variety of additional factors complicated these views, such as the degree to which recreational visitors disapproved of mechanized vehicle use by subsistence users.

A survey of recreational hunters in Gates of the Arctic National Park asked respondents if they encountered evidence of subsistence use during their trip and, if so, how they reacted to this evidence (Christensen and Watson, 2002; see Tables X.X and X.X). 88% of respondents indicated that they saw signs of subsistence users, but were not as bothered by it as they were by other types of user conflicts, such as noise from motorboats. Similarly, a study of backcountry users in Gates of the Arctic found that recreationists described their interactions with subsistence users as more positive than negative (Kneeshaw et al., 2003).

Table X.X
Evidence of subsistence use encountered by Recreational Hunters in GAAR
Adapted from Christensen and Watson, 2002, Table Q26E

	Frequency	*Valid Percent*
-2: Far less than preferred	2	4.1
-1: A little less than preferred	2	4.1
0: About what you preferred	23	46.9
1: A little more than preferred	7	14.3
2: Far more than preferred	5	10.2
3: Had no preference	10	20.4
Total	49	100.0

Table X.X
Effects of Subsistence use evidence on Trip Quality
Adapted from Christensen and Watson, 2002, Table Q27G

	Frequency	*Valid Percent*
-2: Greatly detracted from quality	3	6.1
-1: Slightly detracted from quality	8	16.3
0: Had no effect on quality	35	71.4
1: Slightly improved quality	1	2.0
2: Greatly improved quality	2	4.1
Total	49	100.0

Further social science research is clearly needed to measure the extent or existence of conflicts between traditional and recreational users, and to describe their underlying bases. Without such information, balanced management of multiple uses will be very difficult.

1.5 Economic Research in Alaskan NPS Units

This section reviews the research examining the economic characteristics of Alaskan NPS units. Discussion of this topic is separated into two main components: the economic significance of NPS units and the net economic value of NPS units.[23]

1.5.1 Economic Significance of Alaskan NPS Units

Economic significance is a measure of the market activity associated with one or more NPS units. It includes visitor expenditures within the unit (e.g., entrance fees, park concessions, and visitor lodging), as well the salaries of NPS staff. Also included is the secondary revenue generated by NPS visitors in the communities surrounding the NPS unit, such as the money visitors spend in local gear shops, gas stations, restaurants, and commercial tour establishments. Finally, economic significance includes any increased land values in areas around NPS units.

When discussing the economic implications of Alaskan NPS units, it is important to note that not all economic ramifications of being a gateway community are positive. For example, visitors may cause increased social pressure on a community, including pollution, litter and crime. These changes would, in turn, place more pressure on publicly funded services. Also, NPS lands cannot be commercially developed and may therefore be seen as representing a loss of potential income.

The study of rural economic development in NPS gateway communities is a growing area of research (see Field and Machlis, 2000, for a good discussion of the topic). Little of this research, however, concentrates on Alaska. The gateway communities of Alaska are often different from those in the lower 48 states, as Alaska communities are smaller, more rural, and often are not as developed (Johnson, 2000). Alaska communities also rely more heavily on the natural environment to meet subsistence needs. Thus, much of

[23] Another economic measure is *economic impact*, which measures the income the state or community would lose if an NPS unit closed. This amount is determined in part by the degree to which visitors feel that the experiences offered by the NPS unit are interchangeable with non-park recreational alternatives. We found no studies of Alaskan NPS units measuring economic impact.

the information concerning relationships between the NPS and gateway communities in the lower 48 states is of limited use in Alaska (ibid).

Research Methods

Different aspects of the economic significance of NPS units are estimated using a variety of methodologies. The impacts of visitation may be estimated using surveys that ask respondents how much money they spent on items such as transportation, lodging, food, and souvenirs during the course of their trips. These spending totals are then averaged to give typical spending per capita or per group. Other aspects of economic significance such as NPS staff salaries and the amount of revenue generated by permits, entrance fees, gift shop purchases, concession stands, etc. are often available from archival records. Businesses around NPS units may also estimate the revenue they earn from tourism.

Data collected by the methods above are often used in economic models, to estimate the total economic significance of tourism. For example, regional economic multipliers are used to predict how tourism revenue affects residents of a region. One such model is the Money Generation Model 2 (MGM2), developed at Michigan State University. This model has been used to estimate the economic significance of Alaskan NPS units for gateway communities (see Existing Research, below).

There are several challenges in collecting accurate economic significance data. First, capturing all of the costs and benefits of the tourism industry has historically been a difficult task, as it is connected to many sub-industries. For this reason, the World Tourism Organization developed an accounting system called the Tourism Satellite Account (TSA), which provides a comprehensive framework to calculate tourism revenue (Global Insight)[24].

Capturing the economic significance of tourism specifically related to Alaskan NPS units presents additional challenges. For example, a tourist group may visit multiple sites during a trip to Alaska—both NPS areas and other attractions. How much of their

[24] See the paper by Global Insight for a more complete discussion of the TAS methodology.

spending should be counted as revenue generated by the NPS units? Also, many backcountry users to Alaskan NPS units are independent travelers who remain largely "off the grid." Determining the revenue these recreationists bring to communities is often difficult. An additional challenge involves quantifying the economic significance of local residents who visit NPS units.

Other methodological challenges include the sensitivity of asking survey respondents to report spending data. For example, some people may be uncomfortable reporting this type of information, which may lead to lower response rates. Research needs to be carefully designed and regularly conducted if the economic significance of NPS units is to be accurately estimated. Although economic models such as the MGM2 are powerful tools, the information they produce is only as good as the raw data that goes into them.

Existing Research

Most visitor surveys conducted in Alaskan NPS units do not collect in-depth information on visitor spending. However, several Visitor Service Project (VSP) studies in Alaska included questions about what visitors spend on lodging, travel, food, tours, admission fees and other items. These responses were then compiled to present average per capita and per party spending. However, the general expenditures measured by these studies are difficult to separate into spending that is directly or indirectly related to the NPS unit.

The Money Generation Model 2 (MGM2), developed at the Department of Park, Recreation and Tourism at Michigan State University, estimates the total economic significance that NPS units bring to local communities. MGM2 analyzes primary and secondary economic benefits of the units. Data are generated both on an individual unit and on a state-by-state basis. Regional economic multipliers are used to predict how revenue generation from NPS visitors may benefit local residents.[25] Table X.X below includes estimates generated by the MGM2 for selected NPS units in Alaska in 2001. Note that some of the spending estimates are unrealistically low (e.g., Aniakchak and

[25] For a complete discussion of the inputs and outputs used in this model, as well as the limitations to the method, see the paper by Stynes, 1999.

Yukon-Charley), apparently because some of the model parameters (e.g., the area in which expenditures were counted) were not appropriate for those units.

Table X.X
National Park Service, Economic Impacts of Visitor Spending: Alaska, 2001
From the Money Generation Model 2 (MGM2), Michigan State University

NPS Unit	Visitation		Spending		Direct Effects		Total Effects	
	Recreation Visits	Party Days	Avg. Spending per party day	Total Vistior Spending (million's)	Sales (million's)	Jobs	Sales (million's)	Jobs
Aniakchak NM & Pres	206	164	$ 35	$ 0.0	$ 0.0	1	$ 0.0	1
Denali NP & Pres	360,191	218,587	$ 102	$ 22.3	$ 18.7	460	$ 27.4	582
Gates of the Arctic NP & Pres	4,505	2,755	$ 66	$ 0.2	$ 0.1	5	$ 0.2	5
Glacier Bay NP & Pres	380,114	217,802	$ 76	$ 16.5	$ 13.6	389	$ 18.1	457
Katmai NP & Pres	67,038	42,054	$ 67	$ 2.8	$ 2.3	66	$ 3.1	78
Kenai Fjords NP	262,353	147,721	$ 107	$ 15.7	$ 13.2	325	$ 19.3	412
Klondike Gold Rush NHP Alaska	713,436	357,890	$ 61	$ 21.8	$ 17.6	508	$ 23.3	595
Lake Clark NP & Pres	4,397	2,859	$ 86	$ 0.2	$ 0.2	5	$ 0.3	7
Sitka NHP	211,984	106,006	$ 62	$ 6.5	$ 5.2	151	$ 6.9	177
Wrangell-St Elias NP & Pres	28,643	16,044	$ 75	$ 1.2	$ 1.0	29	$ 1.3	34
Yukon-Charley Rivers Npres	6,571	6,302	$ 30	$ 0.2	$ 0.1	5	$ 0.2	5

Other economic studies address the amount of money brought to Alaska through tourism and other outdoor recreational activities across the entire state. Such studies do not specifically calculate the economic significance of Alaskan NPS units, although further analyses of data may be possible in order to arrive at rough estimates. For example, one

review of economic research (*The Economic Importance of Healthy Alaska Ecosystems*, Colt, 2001) compiled research investigating the economic significance of various activities associated with Alaska's ecosystems. These activities included: management and stewardship effort, commercial fishing and processing, sport fishing, recreational hunting, wildlife viewing by Alaska residents, tourism, other nonconsumptive recreation by Alaska residents, and subsistence harvest. Colt estimates that $2.6 billion dollars of income is generated annually for the state from the above sectors. This total represents more than twice the employment of the petroleum, mining, and construction industries combined.

The Global Insight research group used the comprehensive Tourism Satellite Account (TSA) method to estimate the total economic significance of tourism to the state of Alaska (2004). These figures do not separate outdoor tourism from other forms of tourism. The McDowell Group conducted an Alaska Visitor Industry Economic Impact study, to analyze Alaska's $1 billion dollar visitor industry (1999). Various tourism associations and state chambers of commerce also track economic data. Again, while these sources do not specifically calculate economic significance of NPS units, they may include data that could be used in analyses designed to produce such estimates.

The discussion of administrative context above described how NEPA sometimes motivates economic research (see page XX). In searching for such research studies we found some EISs and EAs that included sections assessing economic impact. However, we found no specific descriptions of economic research associated with those documents. Apparently the NEPA documents did not include economic analyses that required data collection.

Summary and Avenues of Future Research

The economic significance of Alaskan NPS units has received limited research attention. Although it may be tempting to generalize from the body of economic research concerning NPS units elsewhere, the unique characteristics of Alaskan gateway

communities limit the usefulness of such analyses. Research priorities in this area include:

- Reviewing existing monitoring and archiving procedures to ensure that useful economic data (e.g., data that match the inputs into economic models) are, a) routinely collected, and b) recorded and stored in ways that support research use.
- Establishing regional standards for economic information gathering and storage so that regional analyses are not hampered by methodological inconsistency.
- Forming partnerships with public agencies and commercial entities studying visitor expenditures to obtain information specific to NPS visitors.

1.5.2 Net Economic Value of Alaskan NPS Units

The net economic value of NPS units is defined as the value that NPS units add to society that is not recorded as part of the market economy. Some of the primary reasons that NPS units have been preserved are to provide non-monetary values to society. For example, NPS units provide places of beauty where people can experience nature. They are also places where the natural environment is protected for future generations. Other potential non-market values associated with Alaskan NPS units include, a) unique recreational activities, b) wildlife viewing opportunities, c) subsistence harvest opportunities, and d) the conservation of planetary life support services such as nutrient recycling and carbon sequestration. Alaskan NPS units also have intrinsic existence value; people are comforted to know that they exit, even if they themselves may never have the opportunity to experience them first-hand. Under most economic models, these values are invisible. In order to try to convey the value that natural resources may have even when they do not result in monetary transactions, some economists have attempted to translate such non-market values into monetary figures.

Quantifying intangible net economic values is a relatively new and controversial field of environmental economics. In fact, it is so controversial that for the last several years the U.S. Office of Management and Budget has not approved research questions asking respondents to place monetary values on things that they are unlikely to incur as real costs (G. Machlis, personal communication, July 1, 2002). This policy effectively blocks any NPS-funded research into net economic values and creates a very strong argument against including such research into any social science plan. We have chosen to review

this literature not because NPS managers should use it to measure of the scale of monetary worth represented by Alaskan NPS units, but because net economic values may be cited by a variety of stakeholders commenting on NPS management.[26]

Research Methods

One method economists use to determine the value of non-market resources is to determine people's willingness to pay (WTP) additional money for a certain activity or service. For example, a backcountry user may have actually paid $300 for a trip to Gates of the Arctic but might indicate that she would have been willing to pay as much as $500 for the same trip. The net economic value of the trip is thus $200 more than the economic significance of the trip. Other studies ask respondents how much they would pay to experience certain events during a trip to Alaska, such as wildlife viewing (Miller, Miller and McCollum, 1998).

Related to WTP studies are contingent valuation studies, which ask respondents how much they would pay to conserve certain types of natural resources. For example, one of the only contingent value studies focused on Alaska's natural resources asked American households how much they would pay each year to prevent another oil spill like the Exxon Valdez (Carson et al., 1992). The study found that the average household would pay $31. Multiplying this figure by the 90.3 million U.S. household put the willingness to pay at $309 million per year (Colt, 2001).

The contingent valuation methodology has certain weaknesses. For example, respondents know that they will never actually have to pay the amounts they indicated and may therefore answer strategically in order to skew the results in their favor. Overall, there is no agreed upon methodology to empirically quantify the existence value of natural resources such as Alaskan NPS units (Colt, 2002).

[26] For a more complete discussion of the relevance that nonmarket valuation may have on management decisions, see McCollum, Peterson and Swanson, 1992.

Economists also try to quantify the value of "ecosystem services" —the benefits that healthy ecosystems give to society. Ecosystem services cover many topics, summarized in Table XX below. To measure the value of ecosystem services, economists employ a range of methodologies, including replacement costs, market prices, statistical studies of human behavior, and contingent valuation (Colt, 2002).

Table XX

From Colt, 2002 Table 1
A Taxonomy of Ecosystem Services and Their Benefits to Humans

Ecological Processes	• Fixing and cycling of nutrients • Soil formation • Circulation and cleansing of air and water • Regulation of atmospheric and chemical composition • Pollination • Climate regulation • Disturbance regulation • Waste treatment
Watershed Benefits	• Erosion control and sediment retention • Local flood reduction • River an streamflow regulation • Water supply storage and retention
Habitat	• Habitat for resident and transient populations of animals and people
Biodiversity	• Genetic resources • Species protection and biological control of other species • Ecosystem diversity • Evolutionary processes
Consumptive Use	• Timber, fish and other marketable commodities • Subsistence harvests and associated activities • Recreational hunting and fishing • Agricultural crop and livestock products
Non-Consumptive Use	• Outdoor recreation • Wildlife viewing • Scientific research, education
Future Use	• Option value (ability to use resource in the future) • Bequest value (ability to allow descendents to receive all types of benefits)
Passive Use	• Aesthetic value • Spiritual value • Preservation of Historical and Cultural Heritage • Existence (satisfaction from knowledge that ecosystem remains intact)

Existing Research

We found no research specifically focused on the net economic value of Alaskan NPS units. There is some research on the net economic value of other aspects of Alaska's natural environment. In some cases, data from these studies might be further analyzed or generalized to provide rough estimates of the net economic value of NPS units in Alaska.

For example, one study estimated the existence value of the Bristol Bay National Wildlife Refuges by asking respondents how much they would pay each year to preserve the refuges (Goldsmith et al., 1998). They found that respondents stated a willingness to pay between $25 and $50 per year to conserve the wildlife habitat of the areas, giving the Bristol Bay refuges an existence value of $2.3 to $4.6 billion per year.

Another study took the $25 estimate of the Bristol Bay study to determine the existence value for all 152 million acres of federal conservation areas in Alaska (Colt, 2002). For the low estimate of existence value, Colt used $3 per household—approximately the average direct federal expenditures per household spent to manage public lands. These figures gave an approximate existence value for federal conservation areas in Alaska of between $300 million and $30 billion per year. According to the calculations by Colt, existence value represents the highest single source of net economic value of any environmental service in Alaska (ibid).

Following the methodologies above, we can very roughly estimate the existence value of NPS lands in Alaska. Given that there are 55 million acres under NPS management in Alaska, representing 26% of the total federal land, the approximate existence value of NPS land would be between $78 million and $7.8 billion per year. These approximations do not consider that certain type of ecosystems or NPS units have a higher existence value than others. They are also based on data from only one empirical economic study.

Another WTP study in Alaska surveyed resident hunters, non-resident hunters and Alaska voters to determine their willingness to pay for hypothetical wildlife viewing opportunities (Miller, Miller and McCollum, 1998). They found that Alaskan voters were willing to pay more for a hypothetical day trip to view wildlife, with brown bears sightings being worth more than other wildlife species sightings. Colt (2002) estimates that the net economic value of commercial fisheries, sport fishing, recreational hunting and wildlife viewing in Alaska is between $450 and $640 million per year.

There also exist numerous attempts to determine the economic significance and net economic value of subsistence activities in Alaska (see Section X.X for a discussion of the important of subsistence activities in Alaska). The Office of Management and Budget might approve studies focused tightly on the economic significance of subsistence use if it was plausible that subsistence harvests could be limited, but under present policies, studies of the non-market net economic value of subsistence activities would not be approved. Existing estimates of the value of subsistence activities have been calculated multiple methodologies, and some are as high as $1.7 billion a year (Colt, 2002; Johnson, 2000). These estimates are for subsistence activities throughout the state, and not only for the subsistence use of NPS managed lands.

Finally, economists have quantified the economic value of healthy environments—the value of clean air, water, good soil, carbon sequestration, etc. The most ambitious of these studies determined that the world's natural resources are worth more than $33 trillion a year (Costanza et al., 1997). Colt applied this number to the state of Alaska, estimating that Alaska's ecosystem services are worth approximately $1.6 billion a year. We hesitate, however, to apply this number to arrive at an estimated economic value of the ecological services performed in Alaskan NPS units, as different types of ecosystems perform different functions that are valued at different rates. A more thorough investigation would be necessary in order to arrive at such estimates.

2. Suggestions for Future Social Science

Most of the suggestions below concern the type of information that a social science research program should provide and the ways in which the research might be conducted. These suggestions are not organized in terms of priority, largely because we feel that the final prioritization is the responsibility of the social science plan team. Instead, the suggestions are generally arranged from the general to the specific. We finish, however, with a move back to the general, suggesting changes in the overall emphasis placed on social science within the NPS organization.

2.1 Suggestions Concerning the Conduct of Social Science in Alaskan NPS Units

2.1.1 Adopt a System Perspective of Human Use

One of the historical revolutions in natural resource management has been the move away from piecemeal management of specific plant or animal species to the adoption of a more integrated ecosystem model. At the largest scale, such an ecosystem model would include all human users. We believe that such a fully integrated perspective would be to the long-term benefit of NPS management. However, our task is to make suggestions for a social science plan. Thus, we limit our suggestion to a change in the conceptualization of human use, and propose that an integrated system model of human use within NPS units would improve the contribution of social science to effective management.

One example of an area that could benefit from a system perspective is the present separation between the study and management of recreational and traditional users (as noted in both the discussion of administrative context and the research review above).[27] An analogous situation might be one in which foxes and bears were studied and managed separately. In the same way that ecosystem models encourage coherent and integrated natural resource management, a system model of human use could improve management

[27] A second conceptual separation common in discussing human use divides wilderness or backcountry campers from day-hikers or frontcountry visitors. Although it is important to recognize that user groups differ in many ways, effective management of the whole system of human use may suffer when management of different users is separated (e.g., when backpackers and day-hikers are managed based on independent wilderness management plans and site management plans).

effectiveness by providing a framework for discussing the common and contrasting characteristics of use by different groups. It could also improve the efficiency of social science by highlighting research questions that are relevant to the system of all users – questions that might be overlooked without an integrated model.

The System Perspective, Social Science, and Public Involvement

One consequence of accepting a system perspective is that managers must accept the added complexity and uncertainty inherent in the conceptual model. These factors will alter communication between managers and the public by making it both more complex and more realistic.[28] Public discussions of integrated human use management will have to simultaneously consider more issues than they would have if the management policies under discussion focused only on one type of use at a time. However, we feel that the added complexity is justified because the discussions are likely to leave both managers and the public with a more accurate picture of the management issues. In such complex discussions of user management, social science studies can provide objective information that serves as an agreed-upon basis for productive debate.

Implications of a System Perspective

For a system perspective to be effective, information about the whole range of human-use management issues should be dispersed across the NPS organization. Hiring or designating "bridge" personnel who attend meetings in multiple divisions and keep abreast of all the human-use management issues might accomplish such dispersion. Alternately, the NPS might encourage cross-division interaction where issues of human-use management could be discussed. Current NPS policies creating multi-division planning teams for general management plans provide some support for integrated planning and management of human use, but planning efforts are relatively infrequent and are unlikely to create widespread acceptance of a system perspective.

[28] It will also alter communication with the Subsistence Resource Commissions who share responsibility for subsistence management.

Integrated management of subsistence and recreational use is not necessary in Alaskan NPS units where the experiences and behavior of recreational users are entirely unaffected by subsistence users, and vice versa. However, without empirical data it would be unwise to assume that such a happy state of affairs prevails. Thus, asking both recreational and traditional users about potential conflicts is a critical step in evaluating the need for integrated management (for a more complete discussion of the management implications of user conflicts see Vande Kamp, Johnson, and Manning, 2001).

2.1.2 Anticipate Needs for Social Science Information Associated with Global Warming

Global warming is having a wide range of profound effects in Alaska that are expected to continue or accelerate (XXCite Peterson and Johnson book). Social science is the appropriate tool for detecting and measuring changes in the human use of Alaskan NPS units resulting from those effects. Such changes may affect recreational use, traditional use, or the interactions between those users. Using social science to detect changes can help managers be proactive and mitigate limited management problems that might otherwise grow to become extensive problems before garnering attention.

2.1.3 Critically Evaluate the Information Needs for Regional Management

One of the goals of this review was to evaluate the existing research on a regional basis. It quickly became clear that there were at least two ways in which such evaluation might be made. First, one might evaluate the social science research in which the target populations were regional. This was the type of research found under the sections titled "Regional Research" above. Second, one might review similar research studies in which the target populations were unit-specific and then compare their results to evaluate whether the research questions under consideration had, a) provided consistent information to support regional conclusions, or b) provided different results across units but had received appropriate research priority. This section arises from the first form of evaluation – the type focused on what we will call regional-level research.

One of the important questions that arose when we evaluated the existing regional-level research concerned the degree to which that type of research is currently needed in Alaska. Recent changes in the organization of the NPS are consistent with decentralization and decreases in top-down management. Although regional-level social science information is critical for regional-level management decisions, it is of limited for use at the unit level. Thus, we suggest that the developers of the social science research plan should identify the management goals that are truly regional in scope before setting priorities for regional-level research. In effect, the plan developers should ask, "Is there a regional-level management question that will be informed by this regional-level research?"

One potential management goal that would be regional in scope is the maintenance of an Alaskan Recreational Opportunity Spectrum (ROS; XXCitation). The goal of a regional ROS is to provide a balanced and broad spectrum of recreational opportunities across the protected areas in the region, and to manage each NPS unit so as to provide recreational opportunities that are consistent with both the regional ROS and the unit's enabling legislation. Depending on the conception of the ROS, it might be spread across all NPS units, across all federal lands, or across all state and federal protected lands.

Research relevant to the ROS would examine the range of recreational opportunities sought and obtained by visitors to the pertinent types of protected areas in the region. Research conducted at individual NPS units could be used in such an assessment, but many of the potential research questions would be best addressed by research that was truly regional in scope

At least one interesting regional-level research question is not directly related to a specific regional management issue -- it might be phrased, "Are there consistent aspects of the Alaskan NPS experience that are qualitatively different from experiences elsewhere?" Answering this question is potentially important in helping managers decide whether they should generalize research findings from other protected areas to their own units. From a scientific standpoint, there is no substitute for replicating research with the

target population. However, a regional assessment of the distinctiveness of Alaskan NPS experiences (be they wilderness experiences, or experiences in natural or cultural frontcountry sites) could be useful to managers deciding how to spend limited research funds. Such research could be most effectively conducted using qualitative interviews and would require regionally representative samples of Alaskan NPS visitors.

2.1.4 Seek Research Partnerships with Other Agencies and Private Sector Entities

Several different forms of partnerships that offer benefits to NPS social science in Alaska are discussed in this section. The system of NPS Cooperative Ecosystem Studies Units (CESUs) was created to support such partnerships. Two CESUs share responsibilities in the Alaska Region, the Pacific Northwest CESU, with the University of Washington as the host university, and the North and West Alaska CESU, with the University of Alaska, Fairbanks as the host university.

In perhaps the most common existing form of partnership, skilled research personnel working for one organization can be hired by a separate organization. For example, Alaska state employees with unique expertise and experience have been used to conduct several studies of traditional subsistence use in NPS units. These partnerships can be very beneficial as long as the NPS selects appropriate partners for the specific research questions they wish to answer.

A second form of partnership involves shared funding of research that offers potential benefits to all partners. Regional-level research, like that associated with the regional ROS discussed as an example above, would be particularly well suited to shared funding by multiple federal, and potentially state, agencies. Other potential partnerships might support research in NPS units where visitor experiences cross unit boundaries (e.g., the Chilkoot Trail, protected by contiguous US and Canadian national parks). We are aware of only a few such studies (e.g., Muth, 1995, and studies conducted in cooperation with the USFS Aldo Leopold Wilderness Research Center), but the research reports we obtained were not systematically examined to determine the funding sources.

This second form of partnerships might also be formed with non-governmental organizations or corporations. Partnerships with commercial entities may be particularly well suited to economic research or investigations of recreational trip motivation as these are standard types of marketing information.

2.1.5 Select Research Methods Based on Research Questions (and not vice versa)

The vast majority of the research we reviewed above was conducted using visitor surveys consisting of multiple-choice or similar types of closed-ended questions. Although such methods are well suited to many research questions, it is unwise to assume that a need for social science equals a need for a survey. An article discussing research conducted at Exit Glacier in Kenai Fjords National Park illustrates how different research questions are best answered by different research methods. The article describes a range of research questions and the research program designed to address those questions using a variety of research methods. It concludes that the diverse research program was beneficial even though the range of management issues was not unusually broad (Vande Kamp, Johnson, and Manning, 2004).

Some research questions can be answered using more than one research method. Such situations offer an opportunity for a particularly powerful form of information gathering called triangulation. If two studies using different research methods produce consistent results the level of confidence in those results is much more than doubled. Thus, whenever feasible, such multi -method research should be employed.

2.1.6 Place High Priority on User Counts and Distribution

The discussion of administrative context described how planning processes motivate a large proportion of NPS social science research. Thus, it is reasonable to examine past planning processes to determine what forms of social science should be given high priority. Based on both a literature and direct observation of management planning processes, Vande Kamp, Johnson, and Manning (2001) conclude that an extensive

description of use is of critical importance for the success of management planning. Their conclusion is consistent with other aspects of the administrative context including mandates to address carrying capacities and to provide solitude, as well as the recent modifications to the park planning program standards calling for a detailed foundation document describing baseline conditions.

Based on these arguments and the state of the information we reviewed, we suggest that one of the highest priorities for social research in Alaska should be the regular collection of detailed information about the number of human users and their distribution in space and time. Many important managerial questions can be made on a rational basis when such information is available.

We also suggest that the social science plan might emphasize the potential for new approaches to the collection and estimation of use information. The use of devices such as infrared trail counters to count human users or GPS receivers to record visitor movement can make it feasible to collect extensive use and distribution data. The use of computer simulation models has also attracted attention as a tool for estimating use in ways that are particularly useful to managers. The development of the modeling software and techniques for collecting the required data are a potential area for cross-agency partnerships.

2.1.7 Make a Commitment to Monitor User Counts and Distribution

The collection of human use information should not be seen as a one-time expenditure. Instead, it should be conceptualized from the onset as a commitment to a monitoring program. The ongoing collection of use data is one of the most powerful tools that managers can use to anticipate managerial issues. Monitoring can allow managers to take proactive rather than reactive action.

2.1.8 Research Should Evaluate the Consistency Between Managers' and Users' Perceptions of Unit Significance

The foundation of the managerial policies in any NPS unit rest largely on the significance statements found in the unit's establishing legislation and related documents. Accordingly, a unit's managerial policies are likely to be complied with and supported by human users when their visions of the units purpose are consistent with the official statements. We suggest that the sources of many visitor management problems will be clarified if managers have information about users' vision of their unit's purpose.

Research questions about relatively complex perspectives like the purpose of an NPS unit are usually better suited to qualitative or open-ended interview techniques than to more structured surveys. However, we found relatively few qualitative studies of user views of NPS unit purposes. Quantitative survey questions asking visitors for their views related to specific aspects of significance or their understanding of the underlying reasons for management policies can also be useful.

2.1.9 Explore Research Possibilities Related to the Internet

Our review of trip planning suggested that both the information provided by the NPS and the research that asks about it lag behind recent dramatic changes in the way visitors seek and obtain information about Alaskan NPS units. More creative use of the Internet could benefit Alaskan NPS managers. For example, experimental research could help managers design techniques for using Internet information as a management tool to educate or inform users so as to maximize satisfaction and mitigate potential problems associated with user behavior. However, it may be important not to assume that more information is better. At least one study suggests that in some Alaskan wilderness areas, low levels of information produced higher trip satisfaction (XXCitation).

Managers might also benefit from simpler research describing the ways current NPS websites are being used. Research focused on NPS websites might track the number of hits at particular web pages, measure the number links between specific NPS pages and other sites in the web, and analyze the different groups that make use of them.

Finally, the internet holds promise as a tool for conducting social science research. Internet access is already almost 100 percent in some visitor populations (Spang, Vande Kamp, and Johnson, 2004), and internet surveys offer significant advantages in ease of administration and cost savings. They also have significant limitations and their effectiveness is not well established. We suggest that research designed to assess the effectiveness of internet-based social science while simultaneously collecting other useful information would be a sound recommendation.

2.2 Incorporating Social Science into the NPS Organization

To consistently benefit from social science research the Alaska region must make a commitment to help NPS units become intelligent consumers of social science information. Specifically, the region should hire or train personnel who can a) recognize and articulate needs for social science information and b) critically evaluate the studies proposed to address those information needs. If such personnel are stationed where they can be routinely involved in the day-to-day management of NPS units, opportunities for effective application of social science will be identified more quickly and the studies actually conducted will be more likely to provide useful information.

The need for a deeper commitment to social science can be illustrated by a comparison with natural science. NPS units generally employ staff members who are very capable of recognizing needs for biological information and either conducting or fielding proposals for appropriate studies, but employees who are comparably trained in social science are rare indeed. Social science does not need the same prominence as natural science to be effective in the NPS organization, but the contrast shows a broad gap in the commitment to the two sides of the NPS dual mandate. We suggest that NPS units can build a commitment to social science through such small steps as recruiting seasonal volunteers who are specifically interested in user management to collect simple forms of social science information.

Finally, if the new social science plan is to have a life beyond its publication, the Alaska region must provide a predictable stream of funds to support social science research. Without such funding, social science research will continue to be conducted only to support management plans or in reaction to prominent management problems. No matter how sound the plan, the research will not follow the intended path.

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