

**Southwest Alaska Network
Long-Term Visitor Use Monitoring Protocol Development
Final Report**

prepared for

National Park Service
Southwest Alaska Network
Inventory and Monitoring Program

prepared by

Institute of Social and Economic Research
University of Alaska Anchorage
Steve Colt, Director
(907)-786-1753

Principal Author:
Ginny Fay
EcoSystems

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Acronyms:

ALAG	Alagnak Wild River,
ANIA	Aniakchak National Monument and Preserve
GIS	Geographic Information System
I&M	Inventory & Monitoring (Program)
KATM	Katmai National Park and Preserve
KEFJ	Kenai Fjords National Park
LACL	Lake Clark National Park and Preserve
NPS	National Park Service
SWAN	Southwest Alaska Network

ABSTRACT

The purpose of this research is to assist the National Park Service (NPS), Southwest Alaska Network gain a better understanding of current visitor use volumes and patterns, develop a system to monitor visitor use over time, and use this information to evaluate the impact of visitors on the SW Network Park systems (Kenai Fjords National Park, Lake Clark National Park and Preserve, and Katmai/Aniakchak/Alagnak National Park and Preserve) as part of the NPS Vital Signs Monitoring program. Data about visitor use are important because of the driving force humans have on ecosystems. Not only are total numbers of visitors important in understanding overall usage of park resources, but understanding the trends in visitor use can aid managers in minimizing the impacts of humans on sensitive animals and ecosystems. This report provides information on the project protocols, databases, and visitation trends.

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OBJECTIVES AND BACKGROUND

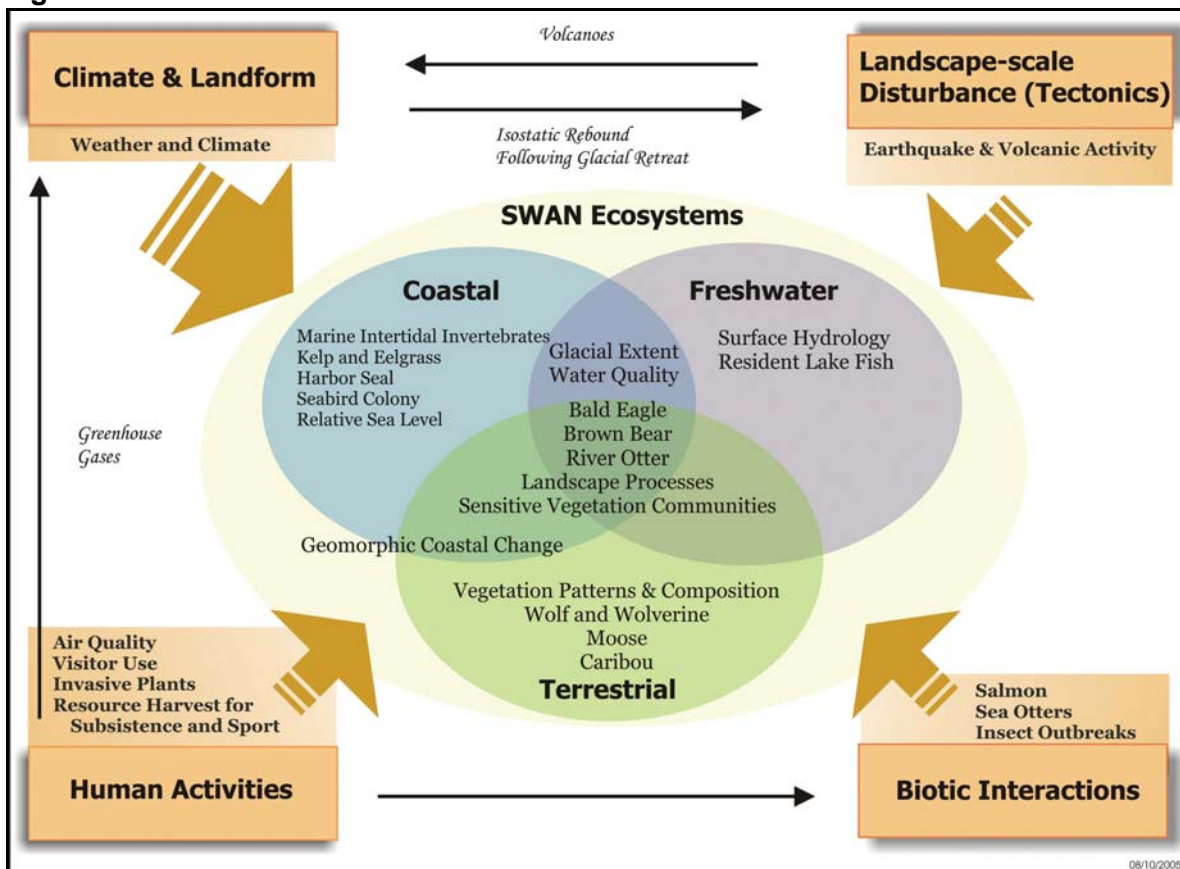
Background and History

The purpose of this project is to assist the National Park Service (NPS), Southwest Alaska Network (SWAN) gain a better understanding of current visitor use volumes and patterns, develop a system to monitor visitor use over time, and use this information to evaluate the impact of visitors on the five park units in southwest Alaska:

- Katmai National Park and Preserve (KATM) managed by the KATM office in King Salmon
- Alagnak Wild River (ALAG) managed by the KATM office
- Aniakchak National Monument and Preserve (ANIA) managed by the KATM office
- Kenai Fjords National Park (KEFJ) managed by offices in Seward
- Lake Clark National Park and Preserve (LACL) managed by offices in Port Alsworth, Anchorage and Homer

These park units fall within the Southwest Alaska Network of the NPS Inventory and Monitoring (I&M) Program (Appendix A). The SWAN identified human activities as important agents of change and an ecosystem stressor to monitor within the I&M program (Figure 1).

Figure 1.



Vital signs as they relate to drivers of change (boxes) and ecosystems (ovals) in SWAN parks.

Source: Bennett et al, 2006.

The NPS initiated the creation of “vital signs monitoring” to address the need to observe and understand the condition of park natural resources. A vital sign is defined as “a set of physical, chemical, and biological elements and processes of park ecosystems that are selected to represent the overall health or condition of park resources, known or hypothesized effects of stressors, and/or are of value to humans” (Bennett et al. 2006). Vital signs monitoring develops scientifically sound information on the status and long-term trends of park ecosystems and determines how well current management practices are sustaining those ecosystems (Bennett et al. 2006).

The ecosystems within the SWAN parks are unique because they have intact populations of wilderness-dependent large mammal species, naturally functioning terrestrial ecosystems, and historic levels of biodiversity (Bennett et al. 2006).

Rationale for Monitoring Visitor Use

The SWAN Vital Signs Monitoring Plan identifies human activities as important agents of change in SWAN ecosystems. Human activities are identified as stressors and divided into two broad categories: far-field influences and near-field influences. Near-field influences include human activities occurring in or on lands and waters adjacent to the parks (Figure 2). The focus of this Visitor Use Monitoring effort is to collect data and analyze near-field human backcountry recreation. Human recreation use presents two resource protection issues: (i) direct impact to physical resources, plant and animals from actions such as vehicle use and camping, and (ii) indirect impacts such as disturbance or displacement of wildlife from actions such as aircraft over-flights.

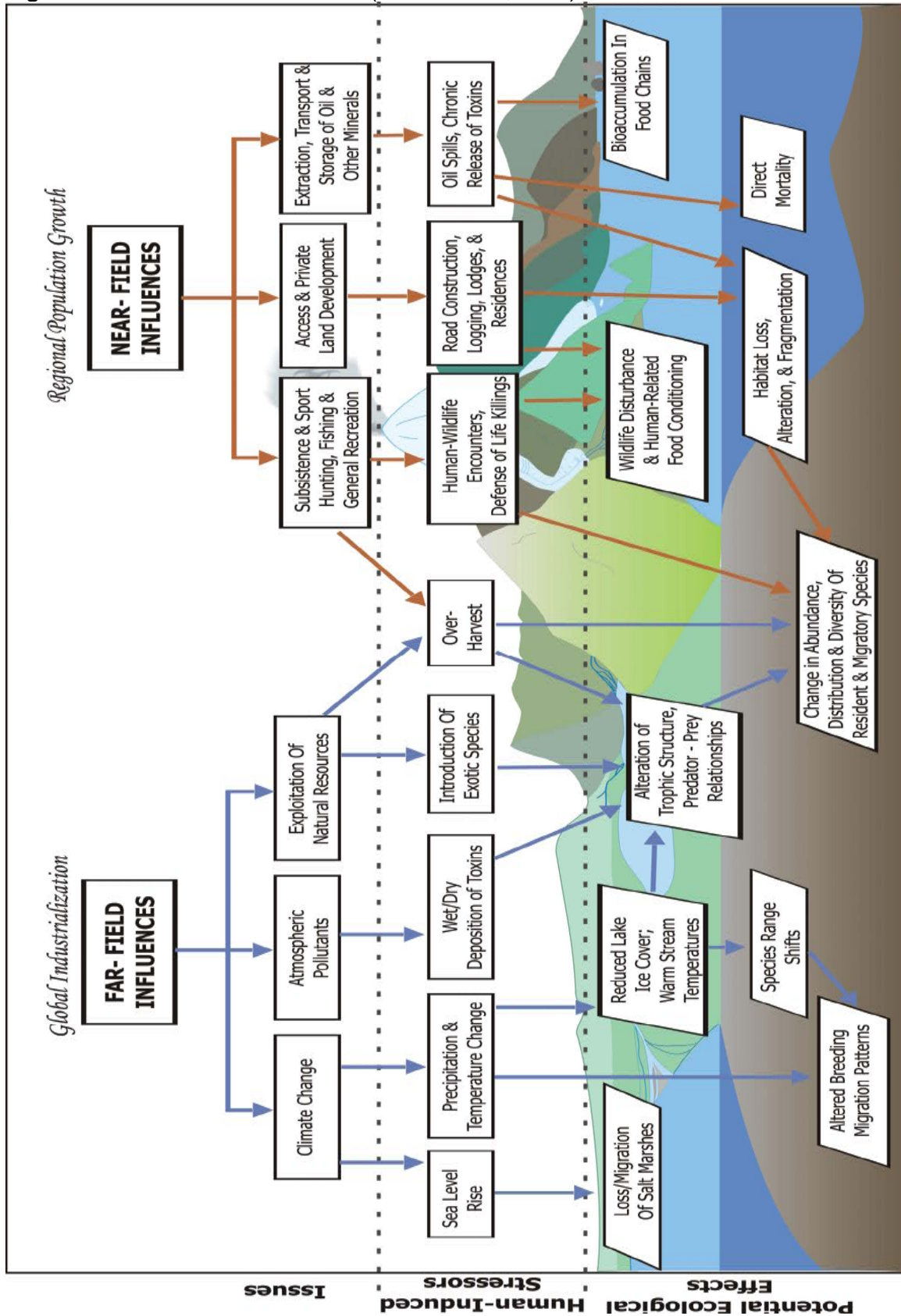
The ultimate purpose of data collection and monitoring is to better inform park management through the understanding of park visitor usage patterns and trends over time.

For each unit in the Southwest Alaska network:

- Determine how timing of visits, activities, and destinations of visitors are changing.
- Determine if and how entry points and modes of visitor access are changing.
- Develop a protocol for collecting consistent visitor use data.

Due to limitations in historical data, the primary focus of this project is the development of a protocol to improve visitor data collection, storage and analysis for long-term monitoring. Trends of visitor patterns and numbers are presented for available data in the results section.

Figure 2. Human activities model (Bennett et al, 2006).



Measurable Objectives

Monitoring of visitor use in ALAG, ANIA, KATM, KEFJ and LACL is designed to answer the following question: How are numbers of visitors and their distribution in these parks affecting park resources and ecosystems?

To understand the role of human activities within the context of naturally changing, dynamic SWAN ecosystems, reliable, consistent data on visitation are necessary. Developing these data for remote, wilderness SWAN parks with ever-changing visitor access is a challenge. The types of data needed for monitoring long-term visitor impacts include:

- Number of visitors and guides by location
- Number of visitor/guide days by location
- Number of visitor/guide nights by location
- Visitor activities by location
- Party or group size
- Length of stay by location
- Guided or unguided
- Method of travel to and within the park
- Method of transportation access
- Spatial and temporal travel patterns—timing of visits, trip itineraries for multiple day trips

Especially critical are the number of visitor days, number of visitor nights, and visitor activities by location. Variables must be clearly defined, information collected and stored consistently, and information be comparable over time.

Legal and Physical Constraints

Park Boundaries and Private Land Development

Aniakchak National Monument and Preserve, Kenai Fjords National Park, Lake Clark National Park and Preserve, and the Alagnak Wild River were authorized by Congress on December 2, 1980 through the Alaska National Interest Lands Conservation Act (ANILCA), Public Law 96-487. Katmai National Park and Preserve was expanded under the act. Provisions of ANILCA limit the ability to charge visitor fees or require mandatory registration for visitors.

Park coastal boundaries are set at the mean high tide level under ANILCA. Each of the Southwest Alaska Network parks has a portion of its boundaries on the marine coastline with jurisdictional boundaries defined as the mean high tide line. As a result, any “visitor” who does not come ashore or above mean high tide is not technically in the parks.¹ Similarly, commercial operators do not have to report on visitors they guide who remain below the mean high tide line or unguided visitors dropped off below the mean high tide line. Commercial operators who only drop visitors below mean high tide are not required to obtain NPS Commercial Use Authorization (CUA) permits or report their activity.²

Private lands or property rights, such as tenancies, located within national parks are called in-holdings. All parks in the Network contain private land in-holdings and border

¹ However, visitors on tour boats at Kenai Fjords National Park are counted as visitors and included in monthly report statistics.

² “Commercial operator” refers generally to any business that transports or guides visitors. A CUA is a commercial operator who is registered and permitted to transport and/or guide visitors in the parks.

private, state, and Native corporation lands. In-holdings range from 1- to 160-acre (0.4 to 64.8-hectare) parcels owned by an individual or a single business, to large contiguous parcels (> 10,000 acres [> 4,000 hectares]) that are owned by Native regional and village corporations. The network of private in-holdings arose from ANILCA, the Alaska Native Claims Settlement Act, and the Homestead Act. Collectively, these acts guarantee access and the promised right of communities, landowners, and residents to continue their economic livelihood.

In-holdings are most prevalent in LACL and KEFJ. Approximately 75 percent of the shoreline of Lake Clark is privately owned, and in KEFJ private economic development potentially could occur on 42,000 acres (17,000 hectares) of predominantly coastal land owned by Port Graham Native Corporation. In some cases, the exact land status is clouded by over-selection, selection by more than one entity, and the incomplete adjudication of many small tract entries and allotments.

Title 11 of ANILCA requires that the NPS provide access across public lands to in-holdings, subject to reasonable regulations to protect park values.³ Owners of in-holdings do not report their visitation to the parks, and commercial transportation providers do not need permits to drop off or pick up persons at in-holdings. Hence, these numbers related to in-holding use and occupancy are not reported to the NPS. A visitor to the park is only reported if they are guided and taken into the park by a CUA. If they return to an in-holding for lodging, they are considered a day visitor.

These legal requirements result in both an underestimate of the total number of visitors and complications correlating visitor use with potential resource effects.

Physical Challenges

In addition to legal constraints, there are physical challenges to collecting visitor data in the SW Alaska Network parks. Development of a visitor data protocol requires explicitly addressing these challenges, which include:

- Unlike the parks with classic road kiosks staffed by park rangers who collect entrance fees and count the number of visitors, most Alaska wilderness parks lack a small number of visitor portals or road accessible entrances. Instead, there are few if any roads and an almost infinite number of shifting entrance locations including the sea coast and lakes for float planes, gravel bars and beaches for wheeled planes, boats along the coast and rivers, and snow for snow machines and ski planes.
- To further complicate transportation issues, access modes include numerous non-traditional mechanisms from kayaks to cruise ships, snow machines, four-wheelers, dog sleds, commercial airplanes, private airplanes, and helicopters, to name a few. Access locations and methods are constantly changing as technology changes and as features of the natural environment and landscape change. Examples include beaches shifting with tides and storms, lands emerging from the intertidal zone due to glacier rebound, and vegetation succession.
- All of the Southwest Alaska Network parks have a limited backcountry ranger presence, which in combination with the large number of visitor entry points and

³ National Park Service, Alaska Region, "Interim Guide to Accessing In-holdings in National Park System Units in Alaska, July 2007.

modes of access make ranger contacts of varying reliability for estimating visitor numbers and characteristics.

Prior Visitor Data Collection Methods

Each of the SWAN parks had independent visitor use data collection processes in place prior to 2006. This section gives a brief overview of those individual data collection processes.

Kenai Fjords National Park

Kenai Fjords National Park estimates backcountry visitor numbers and use using ranger field staff observations. Ranger observations are recorded on a standard field data collection form using a prescribed protocol. Rangers enter the collected data into an Access database annually. The ranger field observation and database system has been in place since 1994. The system uses consistent definitions of visitors and visitor days that are compatible with NPS data standards.

In 2000, KEFJ initiated a voluntary backcountry registration program (VBR). Forms were distributed at visitor centers, by water taxis and park commercial use authorization (CUA) permit holders. Beginning in 2004, by park stipulations CUAs have been required to complete VBR forms for their guided trips and clients.

Kenai Fjords NP has a more concentrated ranger presence where the majority of backcountry visitation occurs, primarily in Aialik Bay. However, it is uncertain what portion of visitors is counted by rangers and what portion of visitors complete VBR forms. In the past no information was recorded on the number of ranger days in the field. This makes it uncertain as to whether changes in annual visitor counts are caused by changes in ranger observation effort or actual changes in the numbers of visitors.

There is a data field on the ranger observation field form for entering the VBR number for visitors encountered with VBR forms or given VBR forms by rangers in the field, but little data has been recorded or entered for this field. As a result, there was no way to calculate the portion of visitors registering or to refine the estimates of annual visitor numbers by correlating information from the ranger and VBR databases.

Kenai Fjord NP's databases containing ranger field form and VBR data enabled analysis of past visitation patterns and trends and is presented in the results section of this report.

Katmai National Park and Preserve

Katmai NPP, Aniakchak NMP, the Alagnak Wild River and Lake Clark NPP share a CUA fee collection and reporting system. Prior to 2006 the system was primarily a fee collection system and visitor information from the filings was not consistently recorded. The fee collection portion of the program was recorded in the Alaska Regional Office, Concessions Office CUA Permitting and Accounting database. Visitor information was entered separately, with a new spreadsheet or database created each year by a different person. There were also no consistent data units such as visitors, visitor days, length of stay or visitor activities or variables defined consistently with NPS data standards. Problems with units of measure were compounded because information was collected on a monthly basis for relatively large geographic areas thus making it impossible to determine the number of visitor days, length of stay or visitor activities at specific

locations within the parks. Developing a historical time series of visitor data from CUA reporting suitable for visitor use monitoring was not possible.

As a result of the millions of acres of backcountry, small number of backcountry rangers, and high population of bears, Katmai NPP backcountry presence is limited and focused on placing rangers in areas with the greatest opportunities for bear-human interactions, and during the periods of highest human use. Under these circumstances, the rangers' roles are primarily resource protection and human safety with less effort placed on visitor counts. As a result, Katmai NPP and the Alagnak Wild River have no consistently collected and stored ranger field visitor use information or database. Aniakchak NMP has no ranger presence because of its low visitation level and thus it has no historical ranger field visitor use data or database. Without historic ranger or CUA visitation data, it was not possible to analyze past visitor data or trends.

Lake Clark National Park and Preserve

As mentioned above, Lake Clark NPP shares a CUA reporting system with Katmai NPP. However, because of Lake Clark NPP's smaller size and number of CUAs, the Chief of Concessions was able to assemble CUA reported visitor use data for 2000 to 2005. Units of measure are not consistent with 2006 data so the information could not be added to the newly developed KATM-LACL CUA Activity and Bill of Collection Report database. However, it could be used for limited trend analysis for this project.

Lake Clark NPP ranger cabins and rangers are located for all or most of the visitor season at Lower and Upper Twin Lakes, Silver Salmon Creek, Telaquana Lake and Chinitna Bay. The rangers at Silver Salmon Creek and Telaquana Lake have collected visitor use data using consistent units of measurement over time and entered these data into electronic spreadsheets. The same rangers have also been at these locations so consistent, reliable historical ranger field data are available for 2000 through 2005. Rangers initially stationed at Upper Twin Lake attempted to record the number of visitors at both Upper and Lower Twin Lakes -- a challenge due to the sizes of the lakes. The degree to which they were able to do this as well as the overlap in visitors between the two lakes is unknown. In recent years, rangers have been posted at both Upper and Lower Twin Lakes but the Lower Twin Lakes rangers were present for a shorter and less consistent portion of the season. As a result, the extent to which Lower and Upper Twin Lakes are additive is unknown. These data were also entered into electronic spreadsheets. Chinitna Bay has had less consistent ranger presence and recording of data. Because Lake Clark NPP provided historic CUA and ranger visitor data, analysis of past visitor trends was possible and is presented in the results section of this report.

METHODS

Evaluation of Existing Systems

An evaluation of the existing systems was conducted to better understand visitor use patterns and the needs and objectives of park staff and commercial operators working with the parks. The analysis included a review of historical park data, where available, and interviews with park staff and commercial operators. The analysis was also intended to clarify visitor data collection and use objectives. The identification of more specific uses helps refine the data identification process and ensures that the information will be collected on temporal and spatial scales applicable to the issues being addressed. Examples of pertinent long-term monitoring objectives include:

- Obtain baseline information

- Track trends
- Link visitor use with changes in ecological conditions
- Relate on the ground physical resource impacts with the number of visitor days/nights and visitor activities (such as fish population levels, wildlife behavior, soil erosion, or vegetation composition changes).
- Relate social impacts to number of visitor days/nights or access patterns, types or frequencies (such as visitor perceptions of crowding or wilderness quality; the number of airplane over flights or landings, marine vessel characteristics or transits frequency).
- Collect and store consistent data over time—institutionalize protocols

The goal of this project is to provide the visitor data necessary to monitor and link visitor use with any changes in ecological conditions. The minimum required information to establish a reliable monitoring program is accurate data on visitor days, visitor nights and visitor activities in specific geographic locations. It is also critical that changes in annual counts not result from changes in measurement practices, intensity, or frequency. Sampling strategies are a primary component of the data protocol to address this issue.

Other data collection issues and constraints considered include:

- The assumption there would be no substantial additional staff or financial resources to the parks in the future so the data collection and storage processes must fit the current operating procedures of the parks.
- To assure long-term commitment to maintaining the developed databases, they must contain simplified and streamlined data fields—the long-term, consistent collection of a small number of critical data items is preferable to a short term flurry of collection of large amounts of less critical data.
- Staff changes in the past and subsequent changes in data collection practices have compromised data reliability and accuracy. To accommodate inevitable staff turnover, it is critical to institutionalize the procedures so they are not dependent on a particular staff person or their personal data collection methodology.
- As part of the institutionalization process, the project clearly identifies data and protocols for data collection and storage. The goal is to make the process as understandable and user-friendly as possible.
- Given the increasingly competitive nature and the high cost of operating small remote tourism businesses in Alaska, a project objective is to avoid unduly increasing data collection and reporting requirements on the park CUAs.

Historical Data

Developing the visitor data protocol included an assessment of historical visitor data, an evaluation of data collection and storage methods, sampling protocols, and data reliability. With the exception of Kenai Fjords National Park, historical visitor data are limited. However, available data and anecdotal evidence from park staff and commercial operators suggest that visitation is increasing, especially in the coastal areas of the Network parks. The highest rate of increase is believed to be in bear viewing areas along the Katmai and Lake Clark coasts. Visitation to Alaska parks has been increasing despite a national trend of decreasing national park visitation rates (Anchorage Daily News, September 25, 2006).

Expert Interviews

In order to ensure that the visitor use monitoring protocols are consistent with day to day operations of the parks, park staff and commercial operators (commercial use authorizations permit holders or CUAs) for each park unit were interviewed. Who was interviewed was determined by the project liaison for each of the SW Network parks. These interviews were also used to develop flow charts of how visitors enter the parks and what systems were in use to record visitor use patterns and characteristics.

Interviews with park staff indicated that they needed visitor data for a number of purposes including:

- ***Understanding visitor use trends and developing demand projections***
- ***Monitoring visitor use impacts***
- Recreation use allocation decisions
- Field personnel allocation decisions
- Budget requests and allocations
- Meeting law/policy mandates
- Planning and baseline data
- Agency reporting and public information requests

This project focuses primarily on the first two goals but also takes into consideration when designing visitor data systems the variety of purposes for which the data may be put to use. If the data management system can meet the multiple needs of a park, then the parks will be more committed to maintaining the visitor use monitoring protocols.

Commercial Use Authorization Data Collection

Based on interviews with commercial use authorization permit holders, a new CUA reporting form was developed and tested for the 2006 summer season that provides more detailed visitor information by date and location for guests visiting the parks with commercial operators. A relational database was also developed for the CUA data for consistent storage and retrieval. The database was designed so visitor data collected by field staff could be readily compared to CUA reported information. A set of standard report functions are included for tracking annual CUA reported visitation. This system is the principal tool for monitoring visitor use trends over time for Katmai and Lake Clark NPP, Aniakchak National Monument and Preserve, and the Alagnak Wild River.

Visitor Field Data Collection

Based on interviews with park staff, a visitor field data form was developed and tested during the 2006 field season.⁴ One of the objectives of the form was to consistently collect data by all field staff, both rangers and natural and cultural resources staff, with consistent units of measurement and definitions. The field form is accompanied by a field protocol sheet. After the 2006 season, data were entered into spreadsheets and loaded into a visitor field data database. Historical ranger field data that were available from Lake Clark and Kenai Fjords were entered into the ranger database.

A set of standard report functions was also developed for tracking field data annually by date and park location as well as monitoring visitor use trends over time. In addition, field

⁴ Staff and commercial operator interview summaries and notes for each SWAN unit are contained in separate reports for each park.

staff evaluated the new forms and protocol. Based on these evaluations, changes were made to forms and protocols.

Voluntary Back Country Registration

A review was conducted of the Kenai Fjords NP Voluntary Backcountry Registration system and Access database. Data were cleaned, lookup tables revised, new reports generated and new protocol recommendations developed.

Based on the review of existing systems and legal and physical constraints, a “tiered” approach to estimating visitor numbers was developed (Appendix B). This approach includes specific data collection strategies used to address likely data gaps. The results of the system evaluations for each park unit are shown in diagrams in Appendix C.

RESULTS

Subsequent to the system evaluation, data review and interviews, a data collection and storage system and protocols were developed (See Appendix D for a complete list of SOPs). The attributes of each are described in more detail in this section.

Specific Visitor Data Needs Identified

The types of data needed for monitoring long-term visitor impacts include:

- Number of visitors and guides by location
- Number of visitor/guide days by location
- Number of visitor/guide nights by location
- Visitor activity(ies) by location
- Party or group size
- Length of stay by location
- Guided or unguided
- Method of travel to and within the park
- Method of transportation access
- Spatial and temporal travel patterns—timing of visits, trip itineraries for multiple day trips

Especially critical are the number of visitor days, number of visitor nights, and visitor activities by location; clearly defined definitions and consistent data collection methods.

Most important is that visitor information be collected consistently from year to year to ensure that changes in visitor day counts are attributable to changes in the numbers of visitors and the characteristics of their visits, rather than changes in counting methodologies or intensities. In this regard, estimating “visitor populations” is no different than population studies on bears, fish or any other park resource. See Visitor Use Monitoring Standard Operating Protocols (SOPs) numbers one and two for details on variable definitions and park locations.

Commercial Use Authorization Database and Protocols

In 2006 a more detailed electronic annual activity report form was developed as part of the long-term visitor use monitoring project (See Visitor Use Monitoring SOPs numbers three, four and five for details). Operators have the option of filing their reports on Excel spreadsheets. The data from the spreadsheets is transferred electronically to the master KATM-LACL CUA Activity and Bill of Collections Report database that can be cross

referenced to ranger field data. Automated Annual Summary Reports from the database include:

- Annual user days by park
- Annual user days by park and park location
- Annual user days by park, park location and visitor activity
- User days by park by month
- User days by park and days of the week
- User days by park by month and park location
- Annual total user days by CUA, all parks
- Annual total user days by CUA by park
- Annual total user days by CUA by park and park location
- Annual user days by park by visitors and by guides

Despite these improvements in the CUA reporting form and use of the VBR forms in Kenai Fjords NP, CUA reporting will continue to miss information on certain visitor segments. Missing segments include:

- All private parties (visitors accessing parks via private boat or plane and unguided).
- Unguided overnight visitors (if dropped off by commercial operator, visitor counts but no information on the number of visitor days, locations, or activities).
- Unguided visitors dropped off and picked up below mean high tide or to park in-holdings.
- Locations and number of visitors and visitor days that consistently have partial day visitation—the CUA reporting forms only ask for visitation in whole day increments.

Field Staff Visitor Data and Protocols

The SW Network parks have insufficient field staff to view and document a significant portion of total visitor use throughout the park, especially in remote areas with relatively little visitation. However, field staff efforts can be focused to fill the gaps in CUA reporting. A standard field data collection form was developed for each of the SW Network parks so rangers, natural resources and cultural resources staff (or anyone else in the field) would all collect the same clearly defined visitor information.

The data fields and definitions were made to match between the CUA reporting forms and field staff visitor data forms but field staff are specifically asked to focus their observations on recognized CUA reporting data gaps. Field staff are the only reliable sources of:

- All information on visitors arriving by private planes and boats.
- Number overnight visitors, unguided—all information, number of visitor days, activities, travel patterns, party size.
- Number visitor days—unguided visitors.
- Visitor activity (ies)—unguided visitors.
- All information on unguided day visitors dropped off below mean high tide.
- All information on guided and unguided day visitors who stay below mean high tide.

The field visitor data form provides:

- One standard form for all field staff

- Data fields aligned with CUA reporting form
- Standardized protocol for collecting visitor data
- All field visitor data loaded into a master database each season
- Consistent data across years and staff
- A method for tracking field effort across years

Field staff in most of the SW Network parks are intermittently placed at locations across the parks. Most are engaged in a variety of duties that prohibit a systematic sampling scheme for counting and contacting visitors. In addition, the vast areas/distances, topography, and vegetation make the ability to see or contact visitors inconsistent. As a result, in most cases field observations cannot be used to count or calculate the number of visitors to specific locations in the park. However, data from the field visitor forms can be used to identify trends in visitation and new patterns of visitor travel, and to develop estimates of visitor days per field staff presence in particular locations.

In addition, field visitor observations can be used to cross reference CUA data reported for the same date and location. When comparing ranger visitor field data and CUA reported activity it should be noted that at park discretion, CUAs are not asked to report partial day visits. As a result, if multiple locations are visited in a day, a CUA may choose to rotate where they report visiting or assign all their partial day visits to one location. In these cases, field observations will not match CUA reports, despite the fact that the CUAs are following park reporting requirements.

In summary, consistent field staff visitor observations can be used to fill data gaps for:

- Unguided overnight visitors
- Parties using their own privately owned access modes such as airplanes, boats and snow machines
- Visitors dropped off or remaining below mean high tide line
- New dispersal patterns of visitors at sufficiently small numbers to not show up consistently on CUA reporting forms

Voluntary Backcountry Registration Program

The Kenai Fjords NP voluntary backcountry registration (VBR) program comes closest to providing the kind of data necessary to monitor long term visitor use. Its only shortfall is that because it is voluntary, it is not completed by all visitors. The requirement that CUAs complete forms for all their guided trips appears to have increased the coverage of the program. Suggested changes to the program and its protocol are included in the recommendations section of this report.

Databases and Annual Reports

Data from these systems (CUA, Ranger, and VBR) are stored in Access databases. Each database includes a set of automatic reports for monitoring visitor use.

The KATM-LACL CUA Activity and Bill of Collections Report database (SWAN_Visitor_Use_CUA_20070426) is designed with built in reporting of the essential variables for tracking visitor use over time and providing the information necessary to compare with other park resource information. Automated Annual Summary Reports include:

- Annual user days by park
- Annual user days by park and park location

- Annual user days by park, park location and visitor activity
- User days by park by month
- User days by park and days of the week
- User days by park by month and park location
- Annual total user days by CUA, all parks
- Annual total user days by CUA by park
- Annual total user days by CUA by park and park location
- Annual user days by park by visitors and by guides

Field observations are recorded on to newly developed field visitor observation forms for each SWAN park unit. Each form has an accompanying set of instructions. The KEFJ ranger database was modified and expanded to make the data applicable for SWAN monitoring of visitor use and to include KATM, ANIA, ALAG, and LACL. Standard Operating Procedures for the field forms, data entry, data analysis and reporting are SOPs 6 through 11.

Similar to CUA reporting, the ranger database also has built in annual reporting for tracking essential variables for visitor use monitoring. These include:

- Total annual visitors and visitor days park summary
- Total annual visitors and visitor days park location summary
- Total visitors and visitor days park location by month
- Total visitors and visitor days park location by day of the week
- Annual visitors and visitor days by CUA by location
- Annual visitors and visitor days and number of guides and guide days by location and visitor activity including average party size and average visitor trip length
- Average number of visitor days per ranger observation days by location
- Annual number of visitors and visitor days by means of transportation access
- Total annual visitors and visitor days park location summary of users dropped below mean high tide (for applicable locations)

Kenai Fjords National Park VBR database was cleaned and revised to improve variable tracking (kefj_2006_VoluntaryBackcountryRegistration_20070430) and the ability to relate VBR and field observation information to improve the quality of visitor use estimates. Information on the VBR database, data entry, data analysis and reporting is contained in SOP 9.

Similar to the CUA and ranger annual reporting, the VBR database also has built in annual reporting for tracking variable for visitor use monitoring. These include:

- Annual summary report for guided and unguided parties and overall by number of parties, number of users, total number of user days, average group size, average length of stay all parties, and average length of stay for multiple day parties only
- Annual summary report by month with transportation mode, total people, user days, and user nights
- Annual summary by campsite location by total parties and user nights⁵
- Annual summary report by visitor entry location for guided and unguided parties and overall by number of parties with number of users, total number of user days,

⁵ There are also VBR records that indicate more than one day length of stay that do not have any campsite data. It is assumed that the person completing the form did not include campsite information.

- average group size, average length of stay all parties, and average length of stay for multiple day parties only
- Annual summary report by visitor exit location for guided and unguided parties and overall by number of parties with number of users, total number of user days, average group size, average length of stay all parties, and average length of stay for multiple day parties only

CONCLUSIONS

This section summarizes some of the new and historic visitor data, reviews visitation trends, and notes data strengths and deficiencies to be addressed.

Visitation Trends

Lake Clark National Park and Preserve

Visitation in Lake Clark National Park appears to have increased steadily since 2000, with CUA reported visitation for the park as a whole increasing by about 50 percent from 2000 to 2006. Compared to other SWAN parks, especially Katmai NPP, Lake Clark NPP receives more unguided overnight visitors so their visitor days are not fully captured in CUA reporting. In addition, a shift in operations of a relatively small number of CUAs results in a large percentage change in visitor numbers and visitor days in any one location in Lake Clark (Table 1 and Figures 2 and 3). The locations with established, regular visitation by one or more CUAs all tend to show increases in visitation during the 2000 to 2006 period. This is especially true for Silver Salmon Creek, which by both CUA reported and ranger field observations shows a dramatic increase in visitation.

Table 1. Lake Clark National Park and Preserve Commercial Use Authorization (CUA) Operator Reported Visitation, 2000-2006*

	2000		2001		2002		2003		2004		2005		2006
	Visitors	Visitor Days	Visitors	Visitor Days	Visitors	Visitor Days	Visitors	Visitor Days	Visitors	Visitor Days	Visitors	Visitor Days	User Days
Chilikadrotna River	70	76	68	66	32	32	68	83	13	23	16	55	22
Chinitna Bay	16	16	116	189	40	40	116	189	134	134	6	6	430
Crescent Lake	73	73	220	262	190	196	220	311	103	103	39	39	100
Kijik River	157	157	255	265	230	251	255	265	62	62	196	196	81
Kontrashibuna Lake	0	0	92	94	48	96	92	94	9	37	40	89	13
Lake Clark (Lake)	724	742	473	753	290	667	473	753	395	444	838	838	455
Mulchatna River	5	17	6	12	29	33	6	12	9	17	20	20	87
Silver Salmon Creek	87	317	155	366	288	525	155	366	177	238	779	1,175	1,542
Tazimina Lake	15	15	58	114	71	99	58	114	86	86	146	146	119
Telaquana Lake	151	172	74	83	60	82	74	88	19	25	96	104	83
Tiikakila River	34	105	21	83	6	30	21	83	35	56	4	4	11
Turquoise Lake	34	82	69	182	83	192	69	182	91	202	111	281	75
Twin Lakes	216	342	233	428	211	333	233	428	190	402	253	344	405
Wolverine Shelter	64	64	15	15	61	61	15	15	0	0	90	90	0
Other	109	175	48	63	87	127	47	62	19	43	33	33	107
Total Reported	1,755	2,353	1,903	2,975	1,726	2,764	1,902	3,045	1,342	1,872	2,667	3,420	3,530

Source: Lake Clark National Park and Preserve, Concession Chief data files, 2006 for 2000-2006 data; SWAN Inventory & Monitoring, CUA Database, 2007 for 2007 data.

*From 2000-2005, CUAs reported the number of visitors. Beginning in 2006, CUAs report visitors and guides in terms of user days by location.

Figure 2. Lake Clark National Park and Preserve Commercial Operator Reported Visitation in selected Locations in Lake Clark NPP, 2000-2006

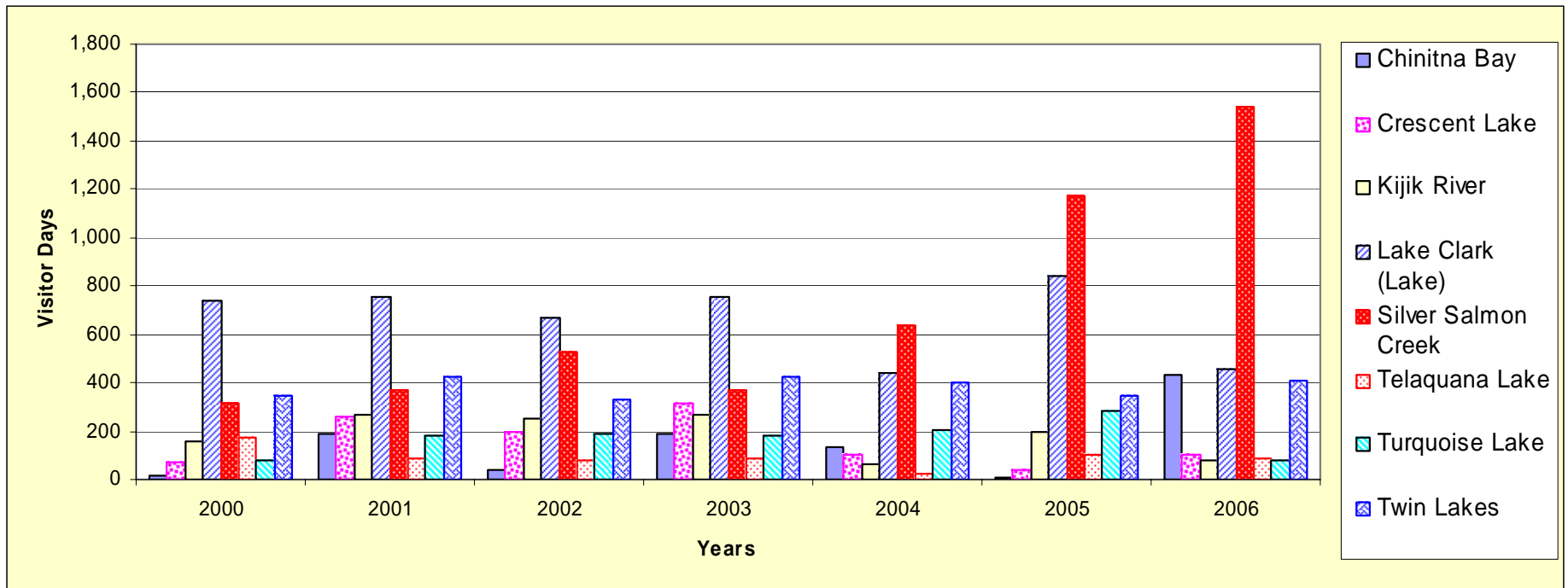


Figure 3. Lake Clark National Park and Preserve Commercial Operator Reported Visitation in selected Locations in Lake Clark NPP, 2000-2006

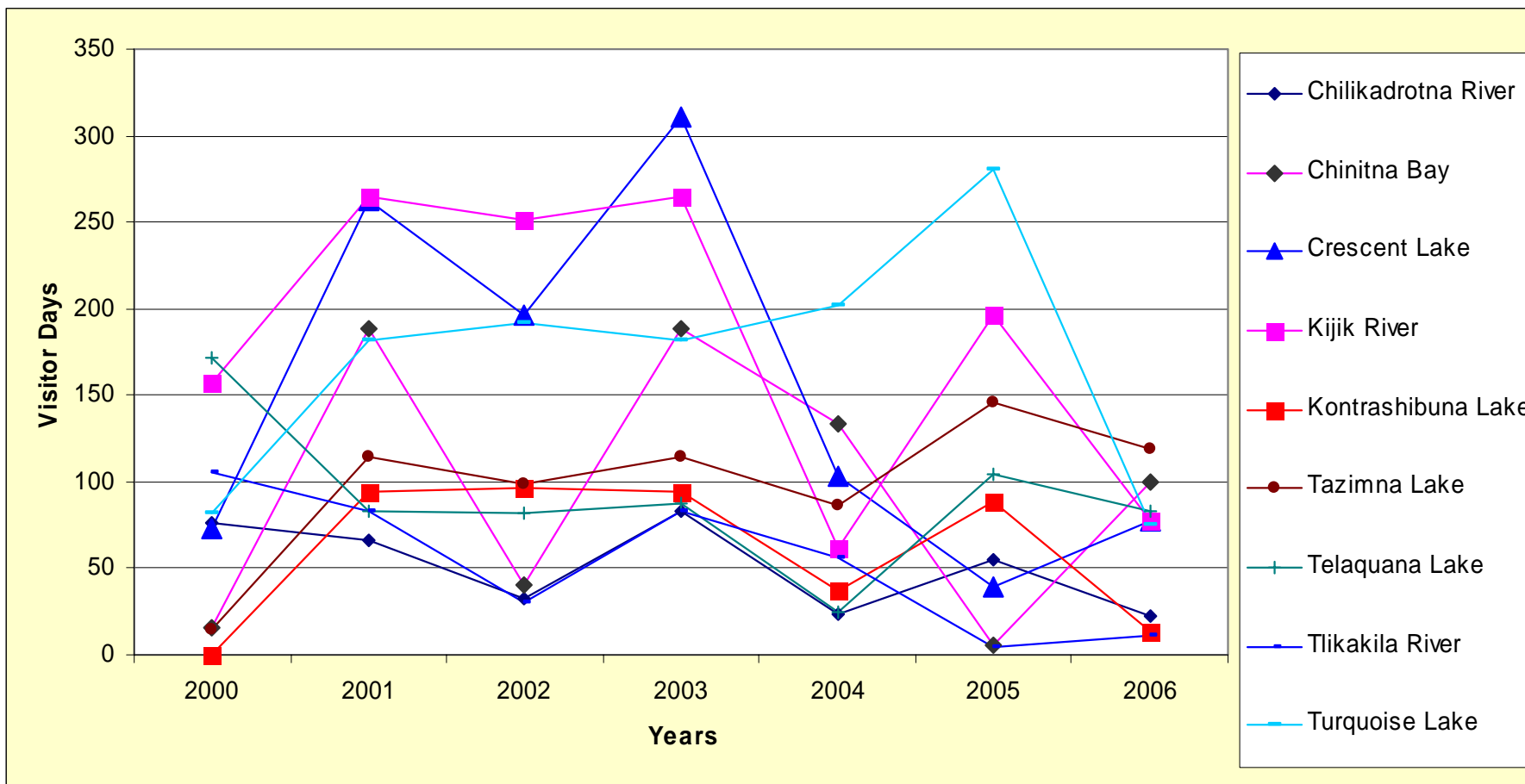


Table 2. Telaquana Lake Visitors, Visitor Days, and Trip Characteristics, 2000-2006

2006	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	52	62	38%	16%	47	15	4.0	1.0
<i>Hunting</i>	14	60	10%	15%	28	32	3.0	5.0
<i>Hiking</i>	15	76	11%	19%	68	8	2.5	5.0
<i>Cabin stay</i>	42	147	31%	37%	56	91	2.0	5.0
<i>Flightseeing</i>	0	0	0%	0%	0	0	0.0	0.0
<i>Other</i>	13	41	10%	10%	41	0	3.0	1.0
Commercial guide or drop off	83	240	61%	60%			3.2	4.0
Private access	53	146	39%	37%			2.5	3.0
Day visitors	71	71	52%	18%			3.2	1.0
Multiple day visitors	46	299	34%	75%			2.5	8.0
Guides	19	28	14%	7%				
Total	136	398						
2005	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	45	49	29%	11%	41	8	4.5	1.1
<i>Hunting</i>	24	153	16%	33%	64	89	3.0	6.9
<i>Hiking</i>	18	84	12%	18%	76	8	3.2	7.8
<i>Cabin stay</i>	37	90	24%	19%	34	56	2.8	3.2
<i>Flightseeing</i>	0	0	0%	0%	0	0	0	0
<i>Other</i>	18	21	12%	5%	10	9	3.6	1.2
Commercial guide or drop off	90	320	58%	69%	320		3.8	5.0
Private access	50	137	32%	30%		137	2.9	2.1
Day visitors	100	100	65%	22%	58	42	3.6	1.0
Multiple day visitors	54	363	35%	78%	255	108	3.0	6.9
Guides	12	12	8%	3%				
Guided groups	41	41	27%	9%	41	0	4.6	1.0
Total	154	463					3.3	3.4
2004	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	38	38	31%	7%	31	5	3.5	1.0
<i>Hunting</i>	34	208	28%	38%	140	54	2.2	8.2
<i>Hiking</i>	17	182	14%	33%	176	0	4.3	16.0
<i>Cabin stay</i>	29	118	24%	21%	65	53	2.1	4.3
<i>Flightseeing</i>	4	4	3%	1%	0	4	2.0	1.0
<i>Other</i>	0	0	0%	0%	0	0	0	0
Commercial guide or drop off	66	409	54%	74%			3.3	8.0
Private access	43	118	35%	21%			2.0	3.0
Day visitors	57	57	47%	10%	28	29	3.2	1.0
Multiple day visitors	65	493	53%	90%	381	84	2.4	8.0
Guides	14	56	11%	10%	56	0		
Guided groups	33	117	27%	21%	117	0	4.1	4.0
Total	122	550					2.7	5.0
2003	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	28	46	24%	10%	18	28	3.6	2.0
<i>Hunting</i>	23	214	20%	45%	166	38	2.1	9.0
<i>Hiking</i>	12	98	10%	21%	98	0	3.0	8.0
<i>Cabin stay</i>	45	107	38%	22%	6	101	2.1	2.0
<i>Flightseeing</i>	0	0	0%	0%	0	0	--	--
<i>Other</i>	9	13	8%	3%	3	10	2.0	1.0
Commercial guide or drop off	52	291	44%	61%			2.9	7.0
Private access	63	177	54%	37%			2.2	3.0
Total	117	478					2.4	4.0

Table 2 continued. Telaquana Lake Visitors, Visitor Days, and Trip Characteristics, 2000-2006

2002	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	106	206	40%	23%	115	91	4.0	2.0
<i>Hunting</i>	38	284	15%	32%	224	60	2.0	7.0
<i>Hiking</i>	32	253	12%	29%	214	39	3.0	7.0
<i>Cabin stay</i>	55	97	21%	11%	24	73	1.9	2.0
<i>Flightseeing</i>	11	11	4%	1%	0	8	2.2	1.0
<i>Other</i>	20	26	8%	3%	5	19	2.7	1.0
Commercial guide or drop off	131	582	50%	66%			3.4	5.5
Private access	128	292	49%	33%			2.1	2.3
Total	262	877					2.6	4.0
2001	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	91	143	43%	17%	118	25	2.8	1.0
<i>Hunting</i>	75	525	35%	62%	351	178	2.2	6.0
<i>Hiking</i>	6	33	3%	4%	33	0	3.0	6.0
<i>Cabin stay</i>	31	132	14%	16%	78	54	1.8	3.0
<i>Flightseeing</i>	3	3	1%	0%	3	0	3.0	1.0
<i>Other</i>	8	9	4%	1%	0	5	2.0	1.3
Commercial guide or drop off	130	583	61%	69%			2.7	5.0
Private access	81	262	38%	31%			2.0	3.0
Total	214	845					2.4	3.9
2000	Visitors	Visitor Days	% of Total		Access		Average Party Size	Average Length of Stay (days)
			Visitors	Visitor Days	Commercial	Private		
Activity					Visitor Days			
<i>Fishing</i>	166	214	67%	25%	191	14	5.5	1.3
<i>Hunting</i>	63	514	25%	61%	365	110	2.7	8.2
<i>Hiking</i>	14	114	6%	13%	44	0	2.8	8.1
<i>Cabin stay</i>	5	5	2%	1%	0	5	1.7	1.0
Commercial guide or drop off	198	675	80%	80%			4.5	3.2
Private access	50	171	20%	20%			2.5	3.4
Total	248	846					4.1	3.4

For Lake Clark NPP locations with ranger stations, visitation patterns depicted by ranger observations show varying trends. Visitation at Telaquana Lake appears to have declined because of the decline in hunting effort due to the reduction in caribou numbers in that portion of the park. Since 2000, visitor days as well as the number of visitors have declined by almost half, mostly attributable to declines in hunters (Table 2 and Figures 4 and 5). In all years, hunters tended to have average lengths of stay approximately twice as long as other visitors. In recent years, not only have fewer hunters traveled to Telaquana Lake but the length of their trips also decreased. In 2003 and 2004, hunter average length of stay was over eight days with an average party size of two to three persons.

Figure 4. Telaquana Lake Visitors and Visitor Activities, 2000-2006

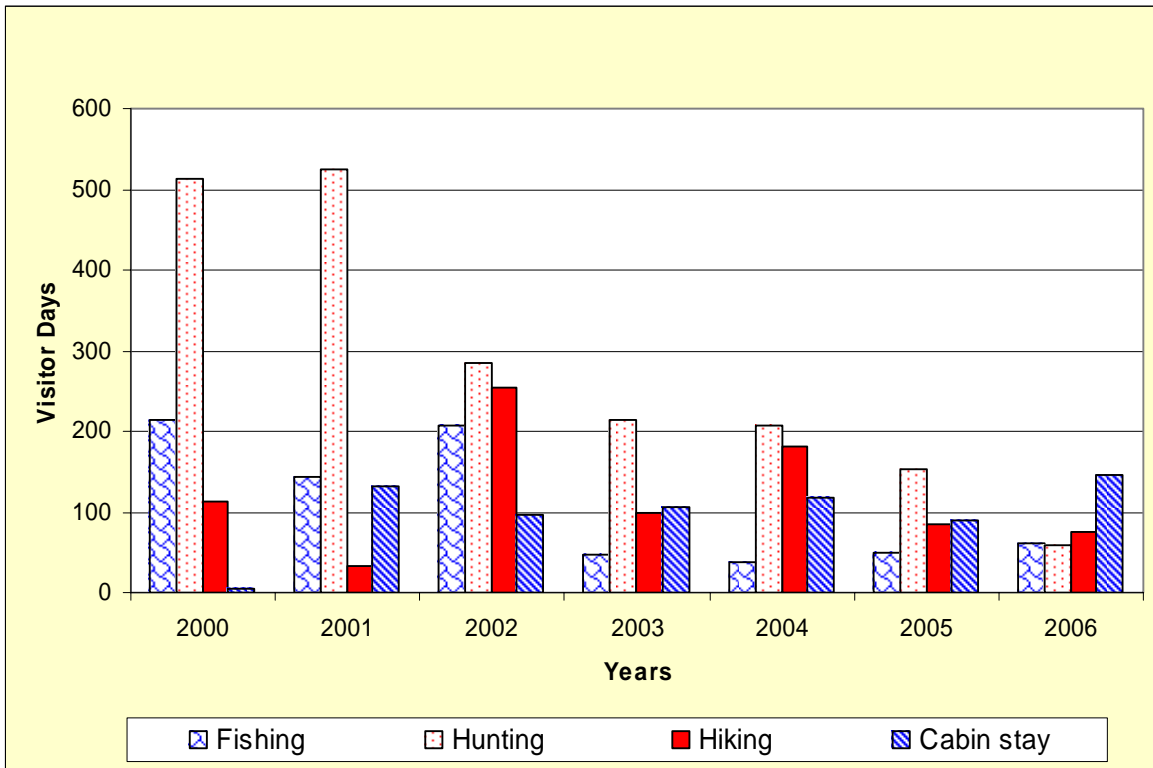
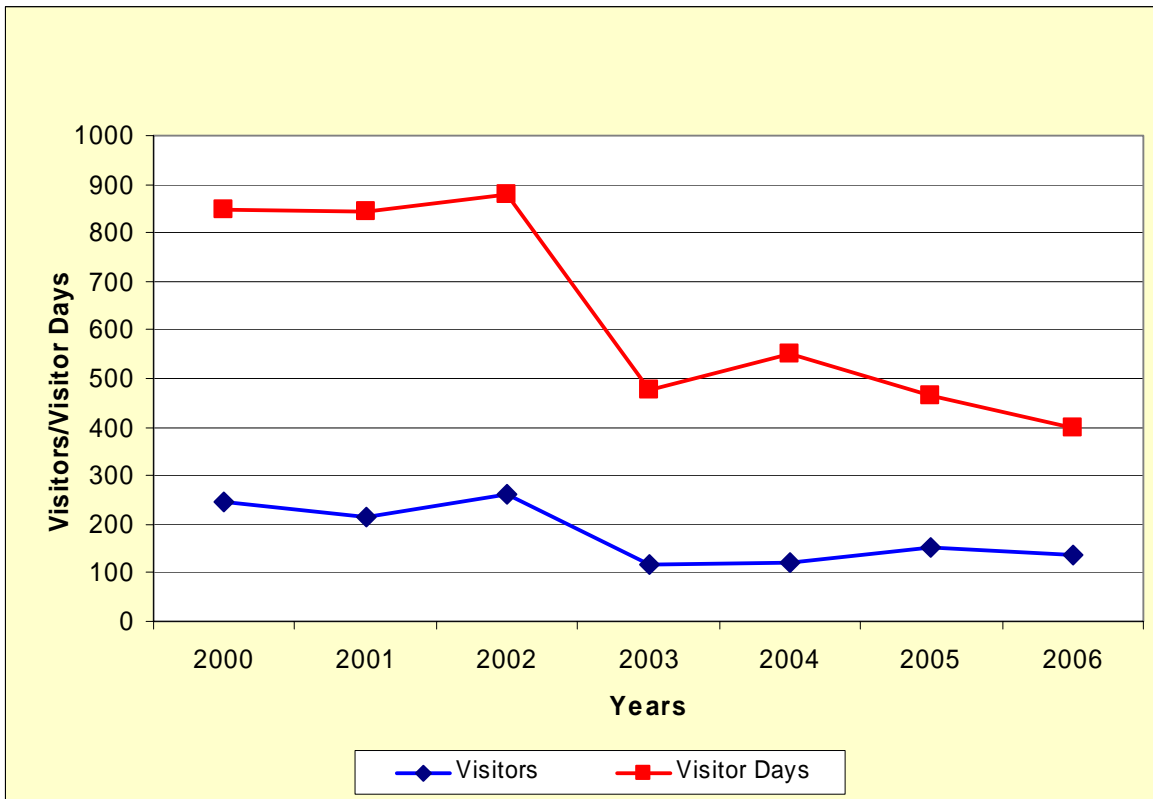


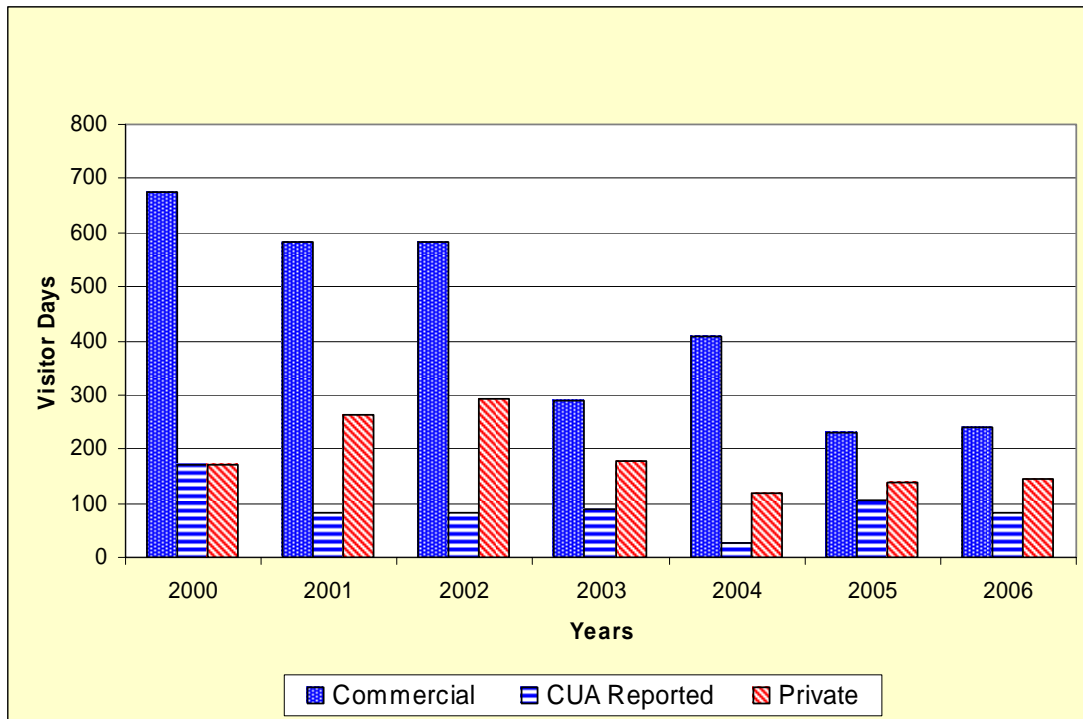
Figure 5. Telaquana Lake People and Person Days, 2000-2006



The trends shown by the Telaquana Lake ranger data are considerably more difficult to depict from CUA data because most of the hunters were unguided. As a result, their actual number of visitor days is not evident from the CUA data. Past and current CUA data undercounts unguided overnight visitors because unguided visitors are only reported when they are dropped off and picked up. For example, actual visitor days and probable ranger observations for the average eight day, three people hunting group would be 24 visitor days. In contrast, an accurate CUA activity report of the same party would be six visitor days—three on the day the party was dropped off and three when picked up. So CUA reporting undercounts actual visitor day by 400 percent in this example. This is most likely the cause of differences in ranger observations and CUA reported visitor days shown in Figure 6, where “commercial” and “private” are from ranger observations.⁶ Also compare CUA reported visitors in Table 1 with ranger observations of visitors and visitor days in Table 2.

Using CUA reports prior to 2006 underestimates visitation both by missing visitor days of unguided overnight park visitors and counting visitors rather than visitor days. Figure 5 shows the significant difference in the number of visitors and visitor days during the 2000-2006 period. With the longer multiple night stays in earlier years, the difference is the greatest. As the SWAN parks develop, and access and visitation grow, the expected pattern of change for backcountry

Figure 6. Telaquana Lake Visitation based on Transportation Access, 2000-2006



⁶ “Commercial” refers to a visitor transported by a commercial operator. “Private” refers to a visitor arriving to the park with their own private airplane or boat. “Unguided” is a visitor not accompanied by a commercial guide—they may or may not have arrived with a commercial operator or in their own private plane or boat. “Guided” refers to a visitor accompanied and paying a commercial operator, permitted as a CUA. While sometimes used interchangeably, unguided does not mean private.

visitation is likely to be for longer stays and more unguided visitors. As a result, ranger observations will become increasingly important to determine if and where these changes are occurring. See also Table 4 and Figure 8 on Kenai Fjord NP visitation, which illustrate the potential for underestimating visitation from counting visitors rather than visitor days.

In contrast with Telaquana Lake, Lower and Upper Twin Lakes show a growing trend in visitation. Much of this appears to be due to an increase in historic visitors coming to see Dick Proenneke's cabin. The Twin Lakes area, however, is also a popular location for backpackers with evidence from ranger observations and notes that more hikers are making the circuit between Twin Lake and Turquoise Lake, and sometimes between Telaquana, Turquoise and Twin Lakes. If unguided, these visitors are similarly undercounted as the hunters visiting Telaquana Lake.

Silver Salmon Creek on the Lake Clark NPP coast is witnessing the biggest surge in visitor numbers and visitor days (Table 3, Figure 7). Based on the average number of visitors per ranger observation day, the rate of visitation doubled at Silver Salmon Creek between 2003 and 2004, but has remained at about the same levels during 2005 and 2006. Again, CUA reported data does not accurately depict the level of growth that is actually occurring.

Most Silver Salmon Creek visitors are day or overnight guests at one of the two lodges on park in holdings; either way these visitors are technically day visitors to the park. Their activity is predominantly bear viewing and to a lesser extent, sport fishing. Valid activity reports by CUAs also under represent the number of visitors and visitor days to Silver Salmon Creek because commercial operators are not required to have a permit or report visitors if they drop off unguided visitors outside of park boundaries. On the Lake Clark and Katmai Coasts, below mean high tide is outside park boundaries. Based on Silver Salmon Creek ranger observations during 2006, approximately 20 percent of visitors were dropped below mean high tide and thus most likely not reported on CUA activity forms. Most of these visitors come into the park during the course of their stay on the coast. This 20 percent, however, does not explain the differences in the person days reported and those observed by the ranger posted in the area.

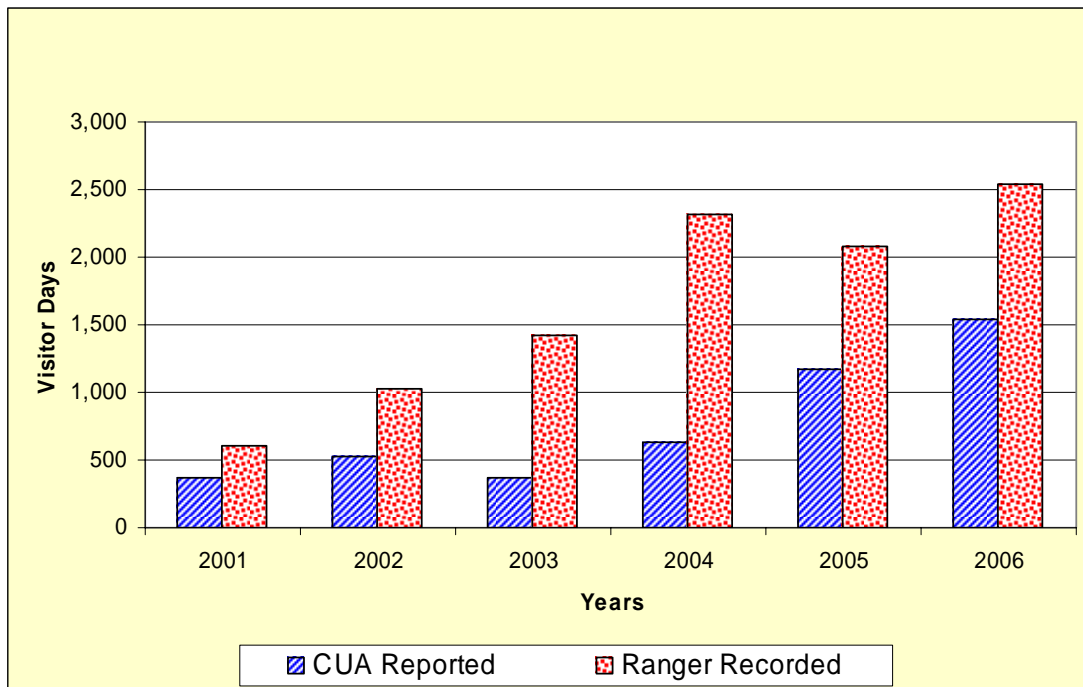
**Table 3. Lake Clark National Park
Silver Salmon Creek Historic Visitation, 1995-2006**

Year	Visitor Days	Observation Days	Field Dates	Average visitor/day
2006	2,529	75	6/17 - 9/13	33.7
2006*	1,930	75	6/17 - 9/13	25.7
2005	2,077	71	6/20 - 9/8	29.3
2004	2,311	76	6/12 - 9/9	30.4
2003	1,396	83	6/18 - 9/7	16.8
2002	1,023	58	6/14 - 9/10	17.6
2001	604	33	7/29 - 8/30	18.3
1996	1,127	28	8/7 - 9/3	40.3
1995	690	11	8/15 - 8/25	62.7

Sources: Data were collected and compiled by several different NPS field rangers over the years.

* This set of 2006 numbers was adjusted to remove NPS rangers and employees so the numbers would be comparable with the data collected in prior years. Local guides for the on-site lodges were also not included in visitor use data from 2002-2005, so those were removed. It is assumed that ranger reports for 2001, 1996 and 1995 also did not include numbers of local guides, but it not certain.

Figure 7. Silver Salmon Creek Ranger Observed and CUA Reported Person Days, 2001-2006



Kenai Fjords National Park

Kenai Fjords NP has had a system in place to track backcountry visitors, record observations on a standard data sheet and record these observations in an Access database since 1994. Their system formed the basis for the SWAN Visitor Use Monitoring project's ranger field observation tracking system both because it is a reliable system and also to avoid causing unnecessary changes in a well functioning program. However, the SWAN ranger protocol specifically addresses some of the aspects of the Kenai Fjords system that will enable it to be used for long-term monitoring.

As shown in Table 4 and Figure 8, ranger observations of visitors and total annual visitor days vary fairly significantly over the 1997 to 2006 period with visitor days varying considerably more than the counts of visitors.⁷ The average length of stay for KEFJ visitors is approximately five days with a party size of four to five persons. Because the majority of backcountry visitors to KEFJ are traveling via kayak, party sizes are likely to average four or more people for safety reasons. Most parties probably consist of two, two-person kayaks. This means that for each party not observed by a ranger, 20 person days are not recorded. As a result, relatively small changes in the number of days rangers are on patrol can result in fairly large fluctuations in visitors and visitor days observed and recorded. This probably accounts for the fluctuations in Table 4 and Figure 8.

Recording the number of ranger days in the field each year would enable "smoothing" the trend line by tracking visitor days per ranger observation day. This would help determine whether changes in visitor counts are attributable to actual changes in visitation or measurement efforts. It is also important to note whether ranger days are occurring over peak portions of the visitor season (Fourth of July) or less visited times of the year. Comparisons from year to year should be done across similar time periods.

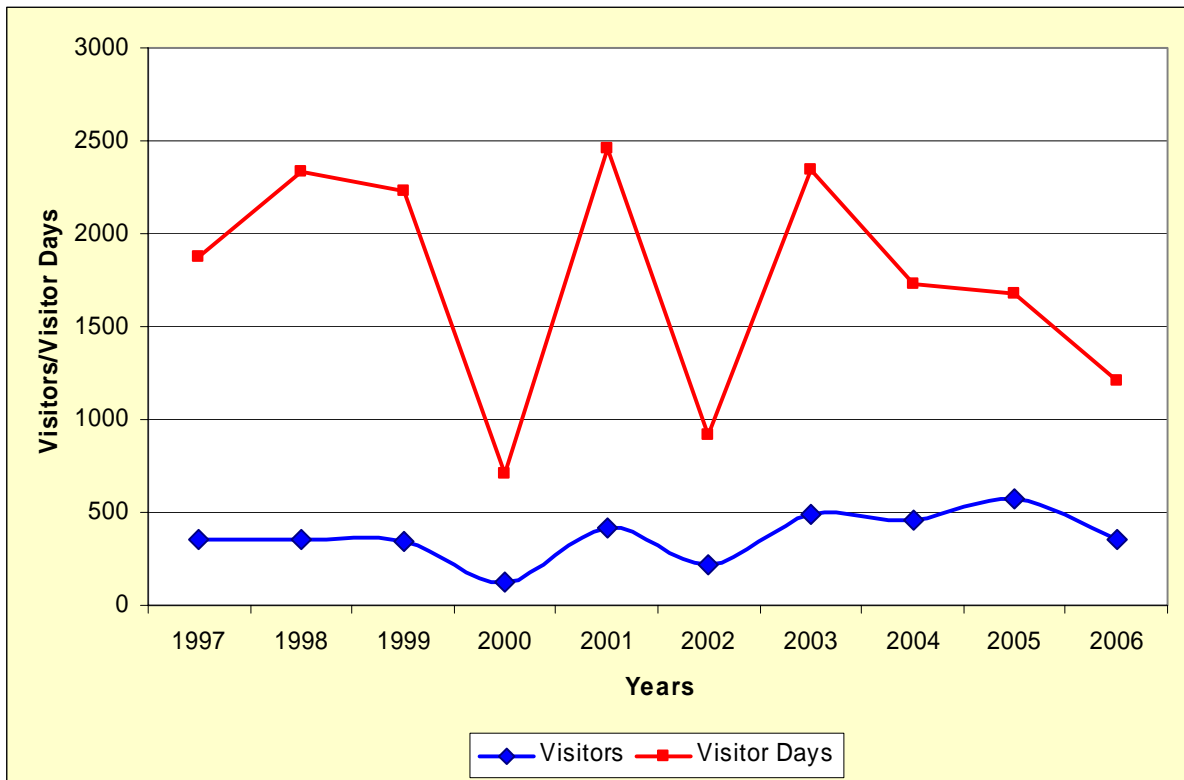
At some point in recent years KEFJ implemented a recommendation that all ranger teams should consist of two persons with law enforcement (enabling gun carrying) training. This effectively reduced by half the number of backcountry rangers on patrol. The data suggest this recommendation was implemented in 2004. This further illustrates that in order to reliably use ranger counts for monitoring long-term visitor use, level of effort measurements are imperative. Without this information, visitor numbers could be interpreted to suggest that visitation fluctuates more widely than it actually does. The data in Table 4 and Figure 8 suggest a general declining trend in visitation since 2003, which may or may not be the accurate.

⁷ Until 2006, Kenai Fjord's system counted total visitors and guides and did not distinguish between visitors and guides. So reference to visitors and visitors days is more accurately people and person days.

Table 4. Kenai Fjords National Park Visitation, Ranger Database, 1994-2006

Year	Total People	Average		Visitor Days
		Group Size	Length of Stay	
1994	414	4.3	4.8	1,946
1995	*	*	*	*
1996	*	*	*	*
1997	350	4.0	5.0	1,872
1998	359	4.2	5.8	2,335
1999	342	5.6	6.1	2,232
2000	130	3.8	5.3	708
2001	414	5.8	5.7	2,463
2002	214	4.3	3.6	921
2003	485	4.7	5.1	2,340
2004	454	5.3	3.1	1,731
2005	577	8.7	4.1	1,679
2006	356	5.0	2.8	1,210
Average	368			1,749
* Data not available.				
Source: SWAN Visitor User Monitoring Ranger Database, 2007.				

Figure 8. Kenai Fjords National Park Ranger Database Total Visitors and Visitor Days, 1997-2006



In addition to ranger patrols and the ranger database, KEFJ also implemented a Voluntary Backcountry Registration (VBR) program in 2001. The program was more fully implemented in 2004 when KEFJ began requiring all companies with CUA permits to submit a VBR form for each of their guided trips in the park. The park is shifting from using ranger observations for its official backcountry visitation counts to using data from the VBR program (Table 5).

However, even under the best of circumstances, both ranger observation and a voluntary backcountry registration program will inevitably miss a portion of visitors for a variety of logistical and practical reasons. These include the fact that the SWAN parks are large wilderness parks that are unlikely to have the resources to more fully patrol even the most frequently visited portions of the parks. A mandatory visitor registration program is also unlikely. Therefore, similar to using rangers' visitor observations in Katmai and Lake Clark to fill the gaps in CUA reported information, rangers in Kenai Fjords can be used to fill the gaps in the VBR system. The critical components for success of this effort are 1) to have rangers record for each year whether a visitor met in the field has a VBR form and from where the VBR form was issued, and, 2) as noted above, the park record of ranger days in the field.

The importance of each of these types of information can be seen from visitation estimates shown in Table 6 and Figure 9. These show that for the years 2004 to 2006, in which KEFJ has both ranger and VBR visitor data, the ranger data depict an overall declining trend in visitation while the VBR program depicts a growing trend in visitation. Most likely, each is more accurately reflecting program implementation effort rather than shifting trends in park visitation. The VBR data also show a trend of a growing portion of VBR forms being submitted from guided parties and fewer from unguided parties. However, it is impossible to determine if a greater portion of KEFJ visitors are guided or if a greater portion of VBRs are from guided parties. The increase in the number of VBRs undoubtedly reflects the growing successful implementation of the program with KEFJ CUAs; it may also mean that less is known about unguided parties. This uncertainty is exacerbated in 2006 by a shift in the roster of water taxi operators from one that always chose to give visitors a VBR form to one that less routinely distributes forms—a factor out of the Park's control and identified in the expert interview process. Without ranger information on the portion of visitors encountered with VBR forms and from whom the forms were issued, these data could suggest a decline in the number and proportion of unguided visitors.

Despite these limitations, however, together the ranger and VBR programs suggest approximately 500 people spend approximately 2,500 person days in the KEFJ backcountry annually. With only a couple additional types of information (annual number of ranger days and portion of visiting parties encountered with VBR forms), more accurate estimates of total visitation can be made. These data would also provide the ability to track changes over time and thus monitor long-term changes in visitor use.

Assuming that KEFJ CUAs comply with park stipulations for filing of VBR program forms, the park should have almost 100 percent counts of guided parties in terms of number of people, person days, visitor activity and campsite locations in the park. If each year rangers record the portion of visitors they encounter in the field with VBR forms and the number of ranger observation days in the field are known, the park can estimate the number of unguided parties that were neither observed nor turned in VBR forms. Data collected over time on the average party size and length of stay of unguided parties can

be used to estimate the number of uncounted people and person days each year. This can be used to develop a better estimate of backcountry park visitation. In addition, because the VBR form collects campsite locations, the distribution of unguided parties among park campsites could also be modeled and estimated.

Table 5. Kenai National Park and Preserve, Voluntary Backcountry Registration Estimates of Total Visitors and Visitor Days, 2004-2006

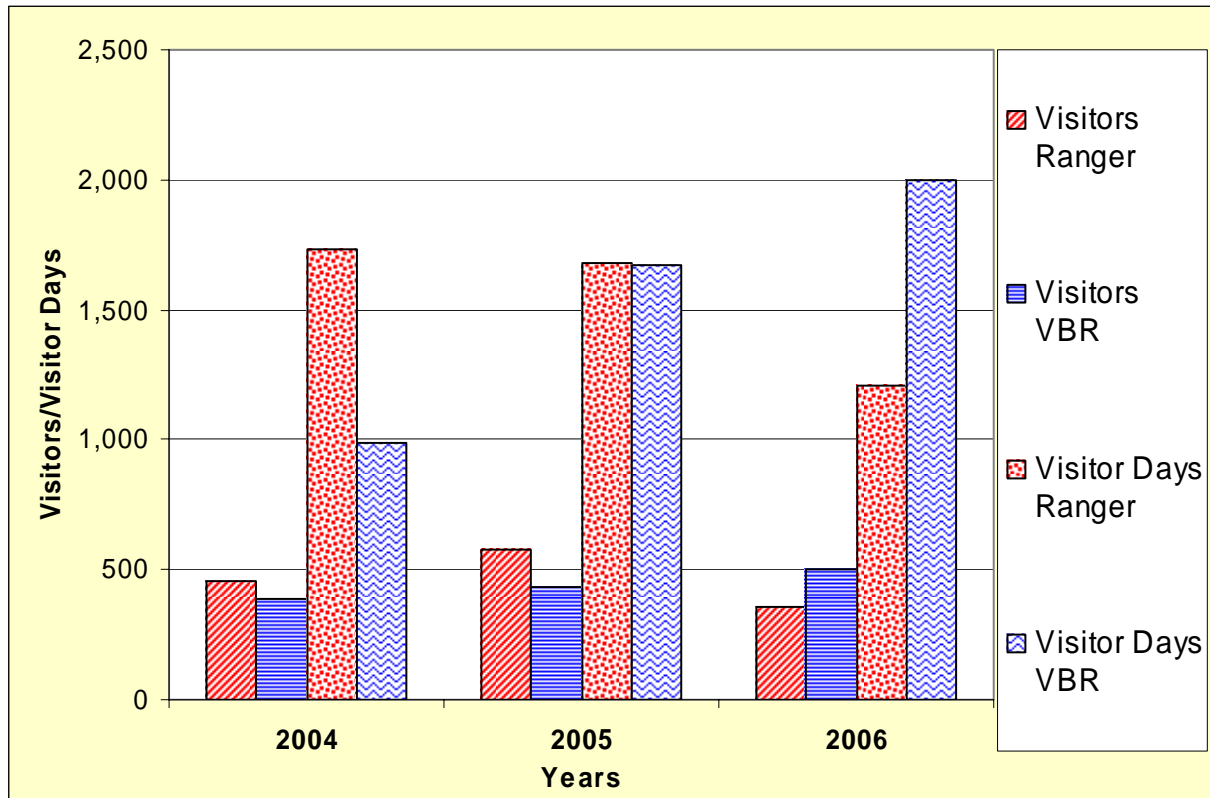
		Total Parties	Total Visitors	Total Visitor Days	Average Party Size	Average LOS Days* (Multi-day)**	
Year:	2004						
Guided Parties:		58	287	578	5.0	1.9	3.0
Unguided Parties:		35	101	411	3.1	4.0	4.0
Overall:		93	388	989	4.3	2.7	3.6
Percent of VBRs issued to guided parties:		62%					
Year:	2005						
Guided Parties:		60	364	1,236	6.1	3.3	4.3
Unguided Parties:		23	69	436	2.9	5.3	5.5
Overall:		84	433	1,672	5.2	3.8	4.7
Percent of VBRs issued to guided parties:		71%					
Year:	2006						
Guided Parties:		65	451	1,795	6.9	3.1	4.8
Unguided Parties:		18	51	205	2.8	4.4	4.6
Overall:		83	502	2,000	6.0	3.4	4.7
Percent of VBRs issued to guided parties:		78%					
LOS=Length of Stay							
*Average length of stay in days for all parties.							
**Average length of stay for multiple day parties only.							
Source: Kenai Fjords National Park, Voluntary Backcountry Registration Database, 2007.							

Table 6. Kenai Fjords National Park, Comparison of Ranger Database and Voluntary Backcountry Registration Estimates of Total Visitors and Visitor Days, 2004-2006

Year	Visitors		Visitor Days	
	Ranger	VBR	Ranger	VBR
2004	454	388	1,731	989
2005	577	433	1,679	1,672
2006	356	502	1,210	2,000
Average	462	441	1,540	1,554
Source: SWAN Visitor User Monitoring Ranger Database and SWAN/KEFJ Voluntary Backcountry Registration Database, 2007.				

Source: SWAN Visitor User Monitoring Ranger Database and SWAN/KEFJ Voluntary Backcountry Registration Database, 2007.

Figure 9. Kenai Fjords National Park, Comparison of Ranger Database and Voluntary Backcountry Registration Estimates of Total Visitors and Visitor Days, 2004-2006



Source: SWAN Visitor User Monitoring Ranger Database and SWAN/KEFJ Voluntary Backcountry Registration Database, 2007.

RECOMMENDATIONS

Voluntary Backcountry Registration

The SWAN Visitor Use Monitoring CUA activity forms; ranger visitor data collection field forms; CUA, ranger and VBR databases; and data collection, storage and retrieval protocols and annual database reports will significantly improve the ability of all the SWAN parks to monitor long-term visitor use and track trends. However, the characteristics and challenges of Southwest Network parks are such that it is unlikely that highly accurate total park visitor counts will be possible without some type of backcountry registration program.

With relatively minor changes in operational procedures and protocols, Kenai Fjords NP will be able to make dramatic improvements in the reliability of the data they collect for long term visitor monitoring. With the VBR system, KEFJ visitor information will be significantly more reliable than the new CUA reporting program being implemented in Katmai, Aniakchak, and Lake Clark National Park and Preserves and the Alagnak Wild River because of the difficulties tracking unguided overnight visitors or visitors dropped off below mean high tide—even with 100 percent compliance from CUAs.

In addition, the park areas are too large to have adequate ranger coverage to fill the gap in CUA reported visitation. The CUA annual activity forms and ranger observations are secondary systems that indirectly gathering visitor information. As a result of their incomplete coverage, they will be limited to monitoring trends in visitation and changes

in visitor patterns rather than being used to more accurately record levels of visitation and directly link these levels to on the ground impacts at specific areas in the parks. To reach this higher level of visitor use impact monitoring, a visitor registration system will be necessary.

As a result, we recommend that all of the SWAN park units implement a voluntary backcountry registration system patterned after the KEFJ system. However, in addition to requiring CUAs to complete VBRs for all guided parties, requiring by park stipulation that VBRs be distributed to unguided parties would fill an information gap evidenced in the KEFJ program. The KEFJ program gap is caused by many visitors accessing the park via water taxis that do not have to obtain permits as CUAs because they never enter the park with guests—remaining below mean high tide. In contrast, most transporters of visitors to KATM, LACL, ANIA, and ALAG are CUAs who enter the parks for inland drop offs and pick ups; some also provide guide services. KATM, ANIA, LACL, and ALAG could implement a VBR program with a greater reach than the KEFJ VBR program because of the large number and extensive use of CUAs in those parks. The VBR database is already in place for the expansion of the program to other park units.

The VBR form also provides a space for communicating important visitor safety information on the back of the form. KEFJ's form contains concise practical information on leave no trace camping and camping in bear country (Appendix E).

Recommendations for relatively minor adjustments in the VBR form and protocol include:

- Dropping the name and address spaces in the VBR form and no longer entering visitor name and address information in the database. These data are not being used, should not be used without explicit permission from visitors requested at the time the names and addresses are requested, and entering the data constitutes approximately 20 percent of the data entry process. Residency of visitors is useful information and could be obtained by only requesting the visitor's zip code.
- Extend the reach of the VBR program by actively soliciting greater participation from boat rental shops, water taxis, the visitors' bureau and others who come in contact with park visitors. VBR forms could also be placed in public use cabins, food storage lockers, and at the small boat harbor.
- Consider increasing the incentive for visitors to complete VBR forms by requesting potential prizes from local businesses such as a pass to the Alaska Sealife Center, night at a local hotel, boat pass to one of the marine tours, or similar rewards for a random drawing of a completed VBR form each year.

Lake Clark National Park and Preserve Monthly Reporting

Locations where rangers are located throughout the summer season in LACL—Silver Salmon Creek, Telaquana Lake, and Twin Lakes—have high quality visitor data that would be more accurate for visitor monthly reports than CUA data.

Website

The CUAs for KATM, LACL, ANIA, and the ALAG pay fees for each visitor and are required to provide a significant portion of visitor data for the parks. As part of their partnership with CUAs, KEFJ has links from their park webpage to each of their CUAs'

websites. This is part of their trip planning information for park visitors providing a win-win for the park, potential visitors as well as CUA partners. Based on conversations with a number of CUAs serving all the parks, these links also appear to be appreciated and help to foster positive relationships.

Staff Training

The results of the new ranger form test implementation during summer 2006 indicate that staff training is critical to the success of the visitor use field data collection program. The LACL head ranger and resource division chief invited project participants to park spring training to discuss the project, the role of rangers and field data collection, and go over the new field sheets and protocol with the seasonal rangers. There was a high, direct correlation between the amount of dialogue and training with rangers and the successful implementation of the program during 2006 and the quality of the 2006 data collected. Building an annual training component into the SWAN Visitor User Monitoring program will be important to its long term success and the reliability of the visitor use data.

Access to Databases

Access to the database reports and information should be available to park staff to facilitate information requests and expand its usefulness beyond the SWAN Inventory and Monitoring Program.

Memorandum of Agreement

Agreements are needed to identify which park unit (region, park, SWAN) is responsible for collecting, inputting, data quality control, storage, retrieval, and annual reporting of visitor use monitoring data.

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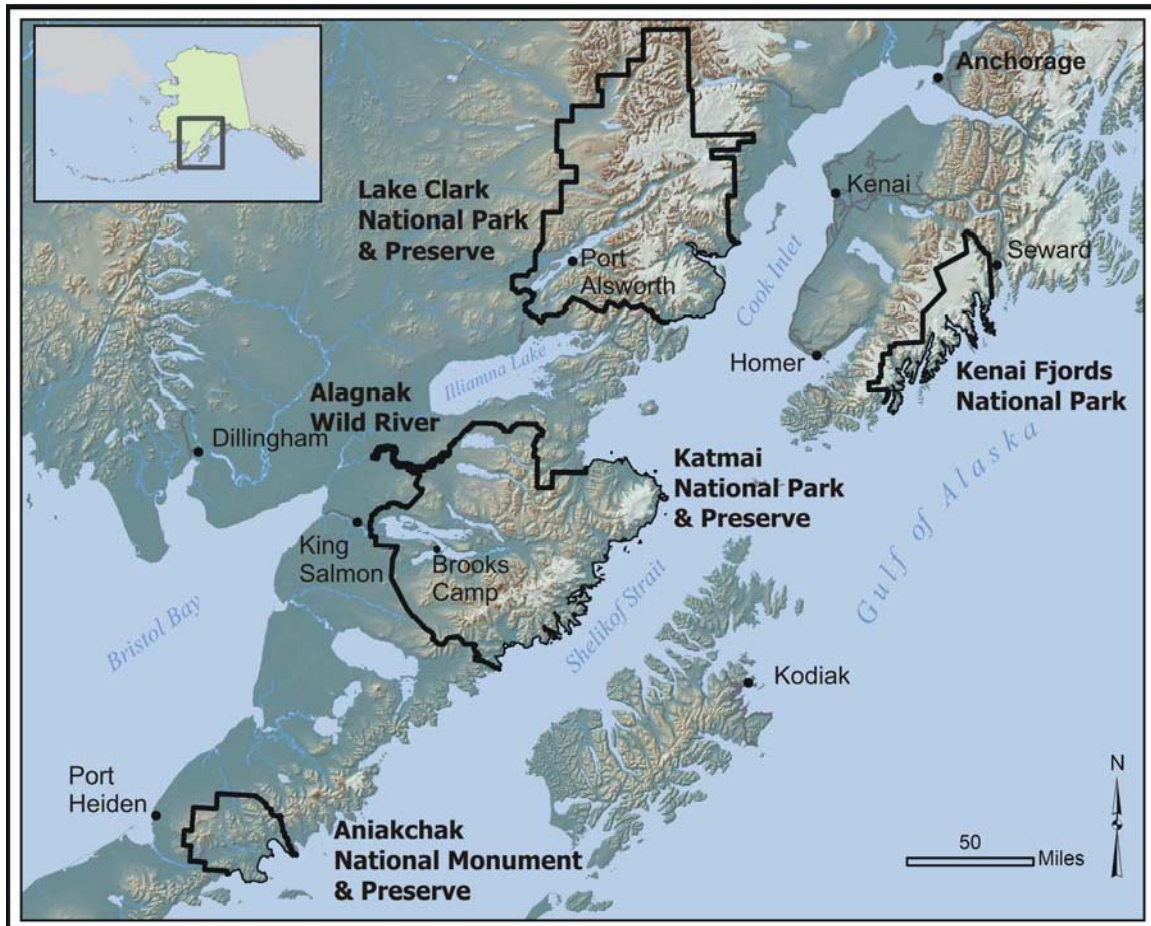
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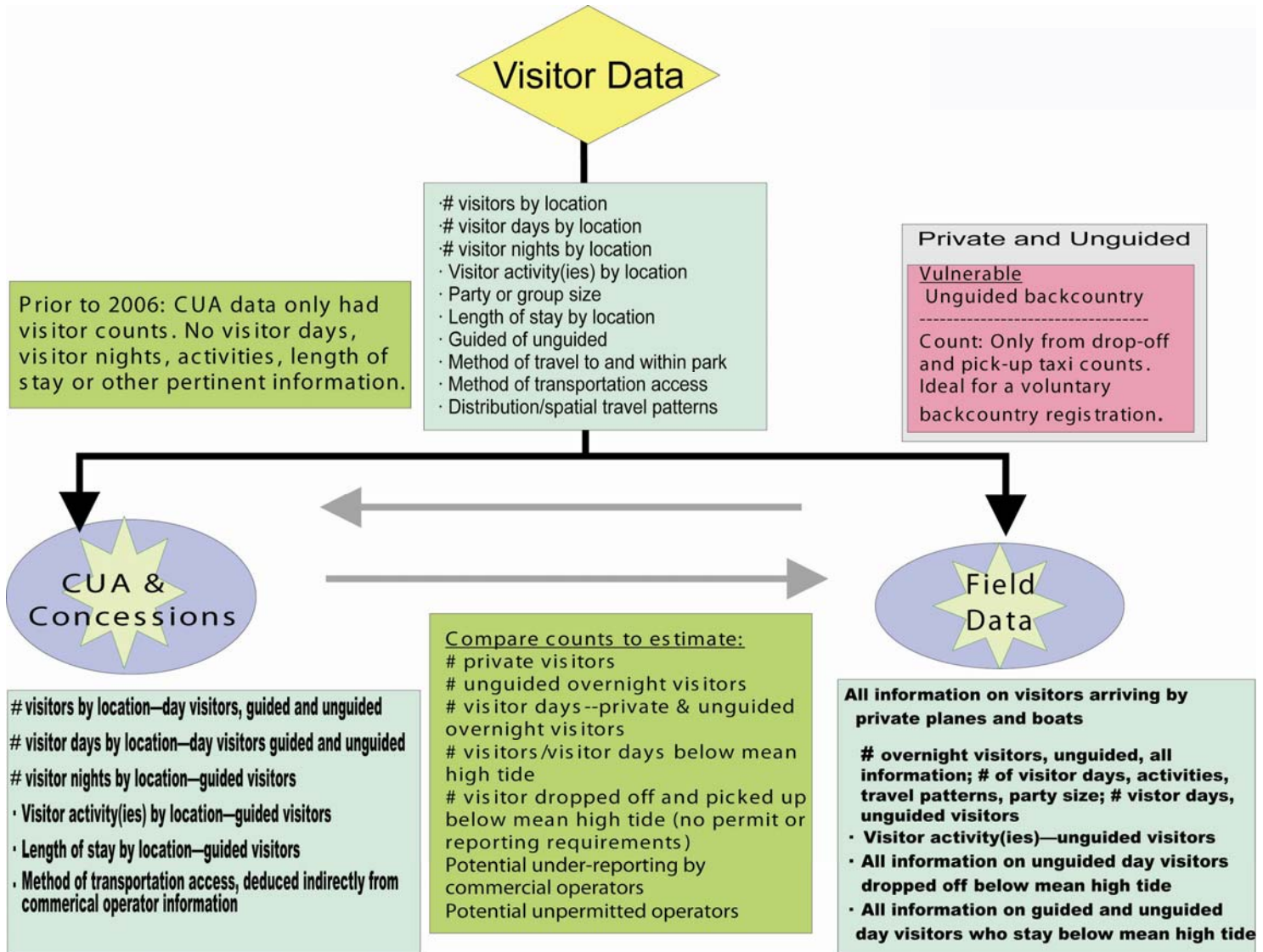
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APPENDICES

Appendix A The Southwest Alaska Network National Park Units (Bennett et al. 2006).



Appendix B
Visitor Use Monitoring Data
Tiered Data Collection
Kenai Fjords National Park, Katmai, Lake Clark and Aniakchak National Park and
Preserves, Alagnak Wild River



Visitor Data Sources and Relationships

Visitor Data

Visitor Data Flow Diagram, G Fay,
DRAFT - June 8, 2006

- # visitors by location
- # visitor days by location
- # visitor nights by location
- # visitor activity(ies) by location
- Party or group size
- Length of stay by location
- Guided or unguided
- Method of travel to and within the park
- Method of transportation access
- Location and timing of travel

- # Visitors
- # Visitor Days for day visitors w/commercial drop off & pick ups and guided visitors
- Activities--guided visitors
- Locations--guided visitors

- All private access visitors
- Unguided over-night visitor days
- Below mean high tide visitors & drop offs and pick ups

Concession & CUA Reporting

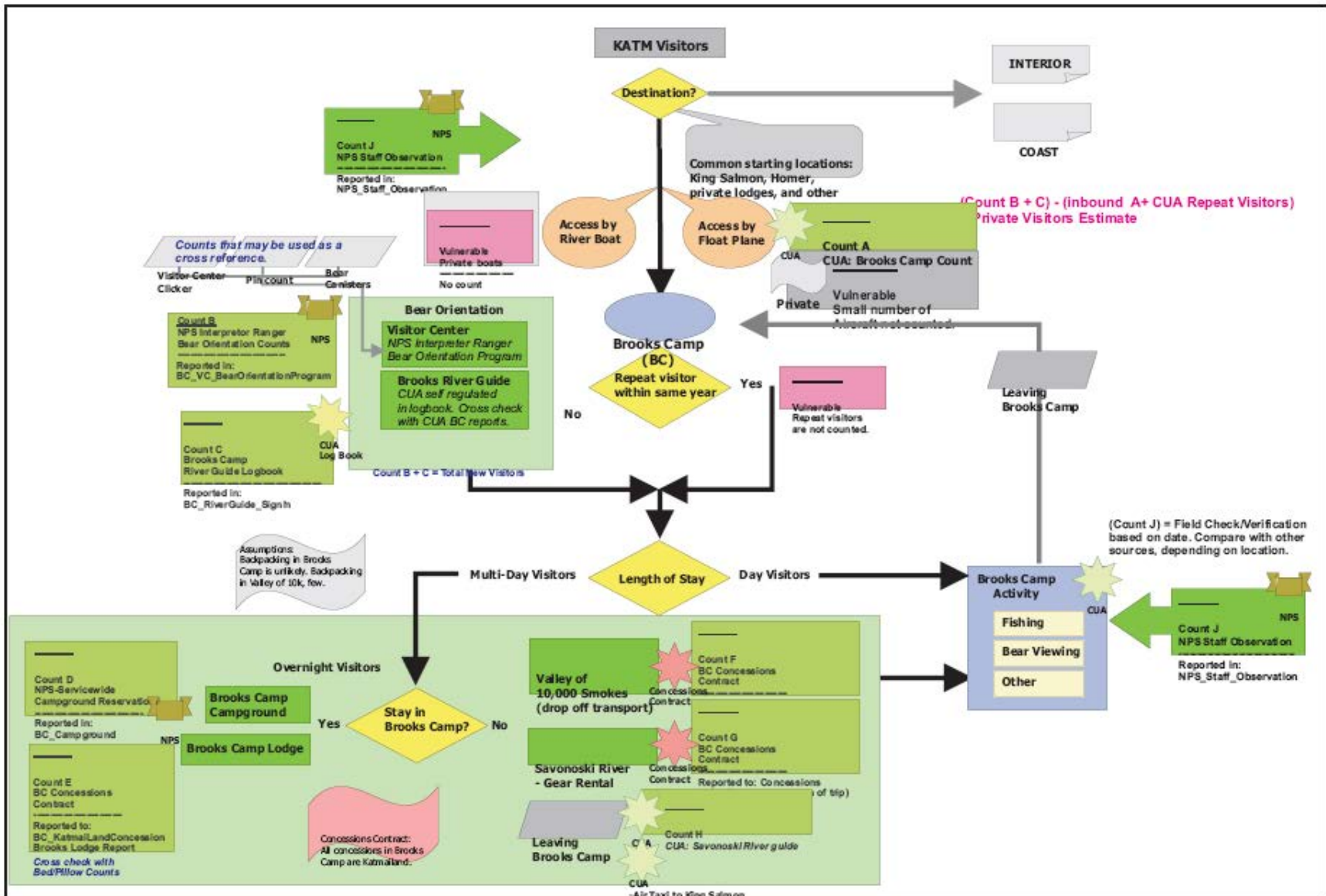
Field Data

Appendix C
Visitation Flow Diagrams

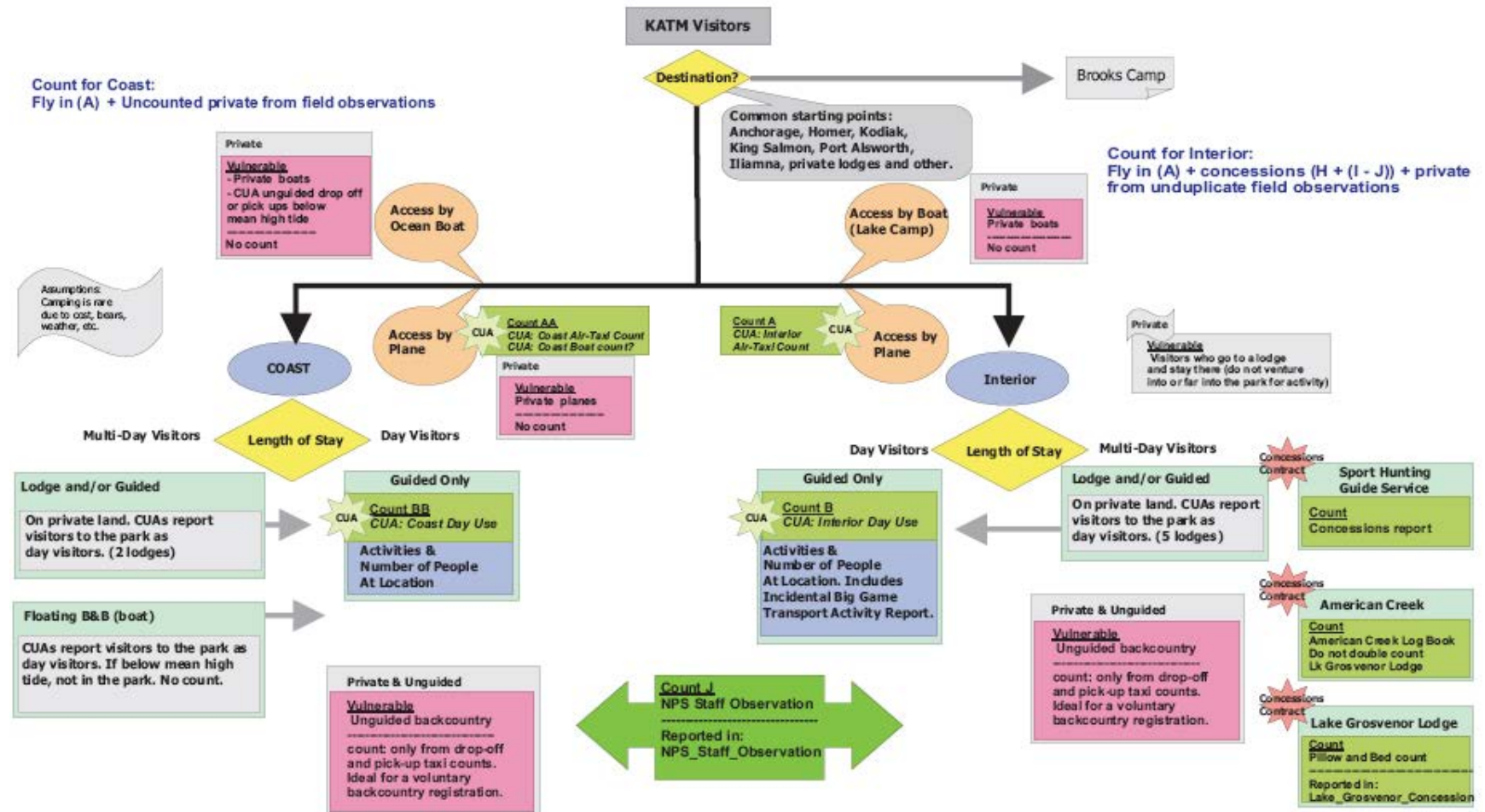
Kenai Fjords Visitor Flow



Katmai Visitor Flow



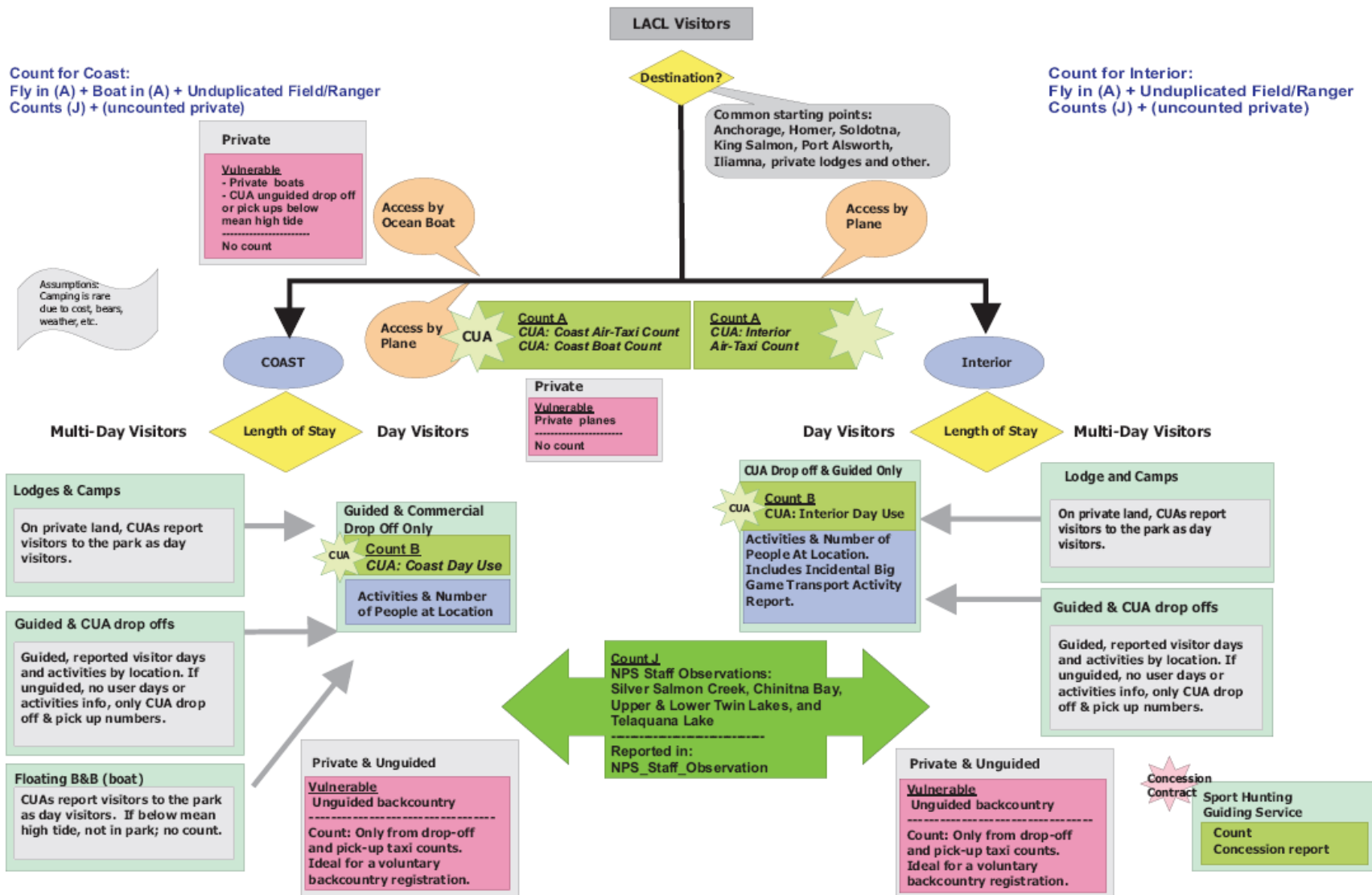
Katmai Visitor Flow – Continued



Lake Clark Visitor Flow

Count for Coast:
Fly in (A) + Boat in (A) + Unduplicated Field/Ranger Counts (J) + (uncounted private)

Count for Interior:
Fly in (A) + Unduplicated Field/Ranger Counts (J) + (uncounted private)



Appendix D
Visitor Use Monitoring
Standard Operating Protocols

- SOP # 1 Visitor Use Monitoring Variable Definitions
- SOP # 2 Visitor Use Location Names and Abbreviations
- SOP # 3 Commercial Use Authorization Activity Reporting Forms, KATM-LACL CUA Activity and Bill of Collections Report database, Data Review, Entry and Reporting
- SOP # 4 Commercial Use Authorization Activity Reporting Forms, Historic Monthly and 2006 Monthly Data
- SOP # 5 Commercial Use Authorization Activity Reporting Forms, Data Analysis and Reporting
- SOP # 6 Katmai National Park and Preserve, Aniakchak National Monument and Preserve, Alagnak Wild River, Backcountry Visitor Contact Record Field Form
- SOP # 7 Katmai National Park and Preserve, Aniakchak National Monument and Preserve, Alagnak Wild River, Backcountry Visitor Observation Ranger Database Data Entry, Storage and Reporting
- SOP # 8 Kenai Fjord National Park, Backcountry Visitor Contact Record Field Form
- SOP # 9 Kenai Fjord National Park, Backcountry Visitor Observation Ranger Database Data Entry, Storage and Reporting
- SOP # 10 Lake Clark National Park and Preserve, Backcountry Visitor Contact Record Field Form
- SOP # 11 Lake Clark National Park and Preserve, Backcountry Visitor Observation Ranger Database Data Entry, Storage and Reporting
- SOP # 12 Comparing Alaska Visitation Trends and Alaska Visitor Statistics Program Data with SWAN Visitor Use Data

Appendix E
Kenai Fjords National Park
Gates of the Arctic
Voluntary Backcountry Registration Form



National Park Service
U.S. Department of the Interior

Kenai Fjords National Park

Voluntary Backcountry Registration

- White copy to NPS
- Visitor keeps bottom copy

Date Trip Begins	Date Trip Ends
<input type="text"/>	<input type="text"/>

Drop Off Location	Pick Up Location
<input type="text"/>	<input type="text"/>

Group Information	Number of People
Leader Name	<input type="text"/>
Address (optional)	
<input type="text"/>	Zip Code

Type of Watercraft	Guided Trip?
<input type="text"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Name of Guide Company
<input type="text"/>

Campsite Location	# Nights
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

Issued By
<input type="text"/>



Kenai Fjords National Park



Help preserve park resources for all to enjoy by following these park regulations.

Protect Your Food from Wildlife

- All food must be safeguarded from wildlife.
- Use metal food lockers at campsites, bear resistant food containers, or hang food 10 feet above the ground and four feet from a tree or cable.

Leave Your Pets at Home

- Pets are not allowed along the coast from mean high tide line to 1/4 mile inland.

Minimize Campfire Impacts

- Standing dead trees are protected and cannot be used for firewood.
- Clean up all trash from fire sites.
- Fires are not allowed within 500 feet of public use

Dispose of Waste Properly

- Pack out all trash and toilet paper.
- Solid human waste must be deposited in cat holes dug at least 100 feet from freshwater or camp

Leave What You Find

- Artifacts are protected by law.

Kayak Safety and Emergencies

- Stay a safe distance from ice and tidewater glaciers.
- NPS rangers monitor marine channel 16.

Gates of the Arctic

National Park Service
U.S. Department of the Interior

Gates of the Arctic National Park
Gates of the Arctic National Preserve
Alaska



Backcountry Visitor Registration

Welcome

All parties venturing into the backcountry of Gates of the Arctic National Park & Preserve are requested to complete this registration form, which is used for National Park Service informational purposes only. It provides park managers with valuable insight into visitor use levels, trends and activities. The National Park Service does not track your party's progress through the park, but this form could be of help if you were reported overdue. We recommend you leave a copy of your itinerary with a close friend or relative for safety/welfare purposes.

Date: _____ Name of Party: _____ # in Party (including guides): []

Home State/Province/Country (list all that apply): _____ / _____ / _____

Starting Location: _____ Date: _____

Ending Location: _____ Date: _____

Route of Travel (specific rivers, drainages, overland routes, passes, etc...):

Commercially Guided?

[] No [] Yes (name of company): _____ # of Guides: []

Method of Access into the Park & Preserve (How did you get to Gates of the Arctic?)

Air: [] Private Plane [] Air Taxi Operator (name of company): _____

Foot: [] From Dalton Hwy. [] From AKP [] Other: _____

Watercraft: [] From: _____ [] Dogsled From: _____

Method of Travel in Gates of the Arctic

[] Hike [] Ski/Snowshow [] Watercraft (Ranger, please note type): [] Dog Sled [] Other: _____

Activities in Gates of the Arctic (check all that apply):

[] Overnight Backpacking [] Day Hiking [] Camping []

Mountaineering

[] River Floating/Paddling [] Lake Touring [] Skiing or Snowshoeing [] Dogsledding

[] Fishing [] Sport Hunting [] Wildlife Viewing/Photography

[] Researching [] Other: _____

Registration/Orientation Location:

[] Bettles [] Anaktuvuk Pass [] Coldfoot VC [] Marion Creek [] Fairbanks [] Phone [] Electronic

Ranger Conducting Visitor Safety & Leave No Trace Orientation:

Animal Resistant Food Container Checkout (Agency Use Only):

Name: _____ Address: _____

Driver's License # and State: _____ Or Passport # and Country: _____

Container ID #(s)/Type: _____ Planned Container Return Location & Date: _____

Actual Date of Container Return: _____ Receiving Ranger's Initials Upon Return: _____

[] Party brought their own animal resistant food containers.

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