

# Supporting Statement for a New Collection RE: Research Assessing Current and Potential Effects of Cruise Ships on Visitor Experiences in Glacier Bay National Park and Preserve

OMB Control Number 1024-New

## B. Collections of Information Employing Statistical Methods

The agency should be prepared to justify its decision not to use statistical methods in any case where such methods might reduce burden or improve accuracy of results.

1. Describe (including a numerical estimate) the potential respondent universe and any sampling or other respondent selection method to be used. Data on the number of entities (e.g., establishments, State and local government units, households, or persons) in the universe covered by the collection and in the corresponding sample are to be provided in tabular form for the universe as a whole and for each of the strata in the proposed sample. Indicate expected response rates for the collection as a whole. If the collection had been conducted previously, include the actual response rate achieved during the last collection.

Glacier Bay National Park (GLBA) is a large park and has several distinct visitor subpopulations. Vessel management in GLBA focuses on cruise ship access to Glacier Bay proper<sup>1</sup>; therefore, the visitors of interest for this research are those who have the opportunity to directly or indirectly encounter cruise ships within Glacier Bay proper. In their report (2005), the Glacier Bay Vessel Management Science Advisory Board identified five categories of visitors that may be affected by cruise ships: 1) cruise ship passengers, 2) tour boat passengers, 3) charter boat passengers, 4) boaters on private vessels, and 5) backcountry visitors. However, given the large geographical separation and the relatively small number of single-day, non-motorized backcountry visitors (i.e., primarily single-day kayakers), the likelihood that cruise ships affect this user group is low enough to warrant exclusion from the study. All of the other visitor categories will be included in the study.

Visitors in these different categories are likely to differ in their motivations and expected experiences for a trip to Glacier Bay proper. Furthermore, prior research suggests that conflicts with other users in general, and crowding-related issues in particular, are asymmetrical; non-motorized visitors tend to be more sensitive to encounters with motorized visitors than vice versa (Adelman, Heberlein and Bonnicksen 1982). Thus, it is possible that cruise ships will affect these visitors' experiences differently, and knowing these differences is likely to be important to park managers.

Park managers agreed that the research should sample visitors from all of the following groups who entered Glacier Bay proper: 1) cruise ship passengers, 2) tour boat passengers, 3) charter boat passengers, 4) private vessel boaters, and 5) multi-day backcountry users. Cruise ship passengers include visitors to Glacier Bay proper aboard large vessels and spend one day in the park. Tour boat passengers are passengers aboard mid-sized vessels that spend one

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<sup>1</sup> Glacier Bay proper is the portion of Glacier Bay National Park that is north of a line drawn from Pt. Carolus to Pt. Gustavus.

or more days in the park. Charter boat passengers visit the park aboard vessels holding up to six passengers and may stay one or more days in the park. Private vessel boaters enter the park on a private vessel permit and can stay one to seven days within Glacier Bay proper. Multi-day backcountry users are primarily kayakers who spend at least one night in Glacier Bay proper.

Furthermore, because park managers were interested in having reliable data for each of these user groups, and the user groups’ experiences in the park differ somewhat, the project was conceptualized as multiple user populations rather than a single user population. Both the quantitative survey and qualitative interviews included these different user populations. To the extent possible, the surveys and interviews ask analogous questions to allow comparison among the groups.

For sampling purposes, the tour boat user population was split into two groups: visitors who take the day-boat out of Bartlett Cove and visitors on other tour boats. This division was done because “other tour boats” are generally smaller cruise ships rather than a day trip. For this reason, visitors and their experiences may be substantially different. The potential respondent universe for each user population is described below:

**Cruise Ship:** People who visit Glacier Bay proper via cruise ship between June 1, 2008 and August 31, 2008 who are over the age of 17.

**Day boat:** Visitors over the age of 17 who visit Glacier Bay proper on the day-boat leaving from Bartlett Cove between June 1, 2008 and August 31, 2008.

**Other tour boats:** Visitors over the age of 17 who visit Glacier Bay proper on other tour boats between June 1, 2008 and August 31, 2008.

**Charter boats:** Visitors over the age of 17 who visit Glacier Bay proper on charter boats between June 1, 2008 and August 31, 2008.

**Private Vessels:** Visitors over the age of 17 who visit Glacier Bay proper on private vessels between June 1, 2008 and August 31, 2008.

**Overnight non-motorized backcountry:** Backcountry visitors over the age of 17 who visit Glacier Bay proper between June 1, 2008 and August 31, 2008.

**Table B1. Contact and Response Rates by User Population for Quantitative Survey**

User population	Estimated population for 2008	On-site contacts	Participation rate %	Addresses for Mail Survey	Response Rate %	Final Responses to Mail Survey
Cruise	400,000	686	80%	549	70%	384
Day boat	3,600	551	90%	496	70%	347
Other tour boat	8,600	584	90%	526	70%	368
Charter	1,305	471	90%	424	70%	297

Private vessel	1,275	468	90%	421	70%	295
Backcountry	900	480	80%	386	70%	269
Total	415,680	3,240		2,802		1,960

The respondent universes for the qualitative interviews with visitors are the same as above. However, in the case of the qualitative interviews, the focus is obtaining data that represent the conceptual space of experience rather than making inferences of population parameters related to frequency or nature of experience.

Table B2. Qualitative Interview Contacts and Completed Interviews by User Population

User population	Estimated population for 2008	On-site contacts	Participation rate %	Completed Interviews
<b>Qualitative interviews with visitors<sup>1</sup></b>				
Cruise	400,000	22	90%	20
Day boat	3,600	11	90%	10
Other tour boat	8,600	11	90%	10
Charter	1,305	22	90%	20
Private vessel	1,275	22	90%	20
Backcountry	900	22	90%	20
Total	415,680	110		100
<b>Qualitative interviews with gatekeepers</b>				
Gatekeepers	30	30	90%	27
<b>Grand Total</b>		140		127

<sup>1</sup>The allocation between user populations is an estimate. It is possible that more interviews may be conducted in some user populations and less in others depending on the breadth of visitor experiences.

2. Describe the procedures for the collection of information including:
  - \* Statistical methodology for stratification and sample selection,
  - \* Estimation procedure,
  - \* Degree of accuracy needed for the purpose described in the justification,
  - \* Unusual problems requiring specialized sampling procedures, and
  - \* Any use of periodic (less frequent than annual) data collection cycles to reduce burden.

Park managers are interested in: 1) measuring the effects of cruise ships on visitors' experiences under current conditions; and 2) estimating the effects of cruise ships on visitors' experiences under future conditions. As noted above park managers indicated a preference for having reliable information for the different user groups of Glacier Bay proper to facilitate their ability to manage the bay for these groups. There was little indication from park managers that an aggregated estimate of the different park user groups would be helpful in their management decisions. However, if such an estimate is desired, the data from the individual user populations will be weighted based on the populations sizes. Prior research on the effects of cruise ships has not established conventional measures of

effects or criterion. Thus, the survey was developed to measure a broad variety of effects (positive and negative) to provide park managers with information that will be part of a larger decision process including findings from studies examining effects on natural resources. Part of that process will entail park managers determining what is an impact for each user group. For the purposes of calculating power, responses to each question asking about prevalence of effects were treated as dichotomous responses: “negatively affected” and “not affected or positively affected.” This approach errs on the conservative side.

There are no current data on rates of effects of cruise ships on visitors’ experiences so obtaining baseline data is as important as obtaining information about potential changes. The project is set up to provide reliable estimates (a 5 percentage point margin of error, 95% confidence interval) of effects on visitors’ experiences under current conditions for each population (e.g., baseline data). Furthermore, the project is designed to statistically compare visitors’ experiences between one- and two-cruise-ship days to assess whether number of cruise ships in the bay is associated with increased effects. Estimates of effects under maximum future conditions will also be calculated. As noted above, the difference between current and maximum future conditions will be less than one- versus two-cruise-ship days, as only one-third of the days will change between the two conditions (go from 61 two-cruise-ship days to 92 two-cruise-ship days).

Table B3 summarizes: 1) the sample sizes calculated based on obtaining a reliable estimate of current conditions (Column A); 2) the percent increase in negative effects between one- and two-cruise-ship days detectable at 80% power (Column B); 3) the percentage point difference between one- and two-cruise-ship days (Column C); and 4) the corresponding percentage point difference between current and future conditions at 80% power (Column D). The differences in negative effects between current and future conditions range from 3.3% to 6.3%, and discussions with park staff indicated these differences are adequate for policy decision purposes.

Other measures of effects of cruise ships are in the survey and many of them use 5-point rating scales. Assuming power of 80%, standard deviations of 0.8, and the sample sizes listed in Table B3, mean differences that are detectable range from 0.25 points to 0.30 points on a 5-point scale (see Column E in Table B3).

**Table B3. Sample Sizes and Power Estimates by User Population**

User population	Estimated population for 2008	Column A	Column B	Column C	Column D	Column E
		Final Responses to Mail Survey <sup>1</sup>	Estimated % of visitors affected negatively by cruise ship			Mean differences detectable at 80% power assuming SD = 0.8 on a 5-pt scale <sup>3</sup>
			Difference detectable at 80% power <sup>3</sup>	Difference one- vs. two cruise ship days <sup>4</sup>	Difference current vs. future conditions <sup>5</sup>	
Cruise	400,000	384	5% vs. 14.9%	9.9%	3.3%	0.24
Day boat	3,600 <sup>2</sup>	347	10% <sup>6</sup> vs. 22.6%	12.6%	4.2%	0.26
Other tour boat	8,600 <sup>2</sup>	368	25% <sup>7</sup> vs. 40.2%	15.2%	5.1%	0.25
Charter	1,305 <sup>2</sup>	297	25% <sup>7</sup> vs. 42.1%	17.1%	5.7%	0.28
Private vessel	1,275 <sup>2</sup>	295	25% <sup>7</sup> vs. 42.1%	17.1%	5.7%	0.28
Backcountry	900 <sup>2</sup>	269	44% <sup>8</sup> vs. 62.9%	18.9%	6.3%	0.30
Total	415,680	1,960				

<sup>1</sup>Sample size calculated using a 5% margin of error, 95% confidence interval, and with a 50% response distribution. Representative samples will have 1/3 of the sample contacted on one-cruise-ship days and 2/3 of the sample contacted on two-cruise-ship days.

<sup>2</sup>When populations are less than 20,000 in size, it is appropriate to consider them finite. Compared to infinite populations, finite populations require smaller sample sizes to achieve the same degree of reliability in an estimate.

<sup>3</sup>Power calculations were all done for infinite populations, which require larger sample sizes than finite populations. Thus, the estimates for finite populations are conservative. Furthermore, sample sizes for one-cruise ship days were equal to 1/3 of the final response to the mail survey and sample sizes for two-cruise-ship days were equal to 2/3 of the final response to the mail survey.

<sup>4</sup>The percentage point difference between one- and two-cruise-ship days is equal to the difference detectable at 80% power. It should be noted that the differences for finite populations are conservative.

<sup>5</sup> The percentage point difference between current and future conditions is equal to one-third of the difference between one- and two-cruise ship days as only one-third of the days will have increased cruise ship entries. It should be noted that the differences for finite populations are conservative.

<sup>6</sup>This estimate is based on the finding that 20% of day boat passengers reported cruise ships detracted from their enjoyment (Johnson 1990). The finding reflects the percentage of visitors reporting cruise ships detracted from their trip experience on both one- and two-cruise-ship days, so may be conservative.

<sup>7</sup>This estimate is based on findings for private, charter, or tour boat visitors that reported cruise ships detracted from their trip (Littlejohn 1999). It is likely conservative as it reflects the percentage of visitors reporting cruise ships detracted from their trip experience on both one- and two-cruise-ship days.

<sup>8</sup>This estimate is based on findings for backcountry visitors that reported cruise ships detracted from their trip while in the backcountry (Littlejohn 1999). It is likely conservative as it reflects the percentage of visitors reporting cruise ships detracted from their trip experience on both one- and two-cruise-ship days.

Initial contacts with park visitors will be face-to-face and primarily made by project personnel to increase participation in the survey (see Appendix L for script). Specific contact procedures for each user population are below. The on-site contact sheet is estimated to take

about three minutes to complete, minimizing the intrusion on visitors' trip experience and increasing their likelihood of participation. Refusal rates of 10% or less are typical for surveys administered by our office. The refusal rate for the cruise ship survey is expected to be higher (conservatively estimated at 20%) because the contacts will be made in Juneau, AK as visitors disembark for land tours. Because of the need to join their tour, they may be less willing to take the time to participate in the study. The Cruise Ship Passenger contact sheet includes a question asking about tours and activities planned for Juneau, AK to allow us to compare our sample to the cruise ship sample included in a survey of visitors to Juneau (McDowell Group, 2001) to determine the extent to which it is representative of all cruise ship passengers. In all populations, every visitor who completes a contact sheet will be sent a mail questionnaire to complete and return. Response rates to the mail survey are estimated to be 70% based on similar studies of park visitors (Swanson, Vande Kamp, and Johnson 2003; Swanson and Johnson 2007). Assuming a random sample and questions of the yes/no type in which the true occurrences of these values in the population are 50%/50%, the data from the expected respondents in each mail survey can be generalized to their corresponding population with a 95 percent assurance that the obtained or observed percentages to any item will vary no more than  $\pm 5.0$  percentage points.

## **Sampling and Contact Procedures**

### Cruise Ship Passengers

The specifics of the sampling plan for cruise ship passengers cannot be determined at this time as the cruise ship schedule has not been released for the 2008 summer season.

Probability-proportionate-to-size (PPS) sampling will be used so that each person in the final sample has the same probability of being selected. Probability-proportionate-to-size refers to a type of multi-stage sampling in which clusters are selected, not with equal probabilities but with probabilities proportionate to their sizes—as measured by the number of units to be sub-sampled (in this case passengers) (Babbie 2005). Because all vessels will have the same number of visitors sampled from them, larger vessels will have higher probabilities of being sampled than smaller vessels. As vessels make multiple cruises to Glacier Bay proper each summer, clusters will be defined by vessel-visits (e.g., 1<sup>st</sup> cruise by vessel A). Using the probabilities calculated by PPS, randomly selecting vessel visits and then randomly selecting individuals from that vessel should result in a representative sample of visitors to Glacier Bay proper.

Each cruise ship passenger in the sample will be identified based on a sampling interval to be determined. The width of the gangplank results in the vast majority of individuals going single-file down it. If two individuals walk side-by-side, the individual closer to the interviewer will be counted first. When an identified passenger leaves the gangplank, the survey worker will approach, introduce the survey, and ask him or her to participate. A sample of approximately 686 cruise ship passengers who visit GLBA will be contacted during the sampled time periods. Refusals will be recorded (see Appendix K for log), and a 20% refusal rate is expected. When a passenger refuses to participate, the survey worker will log the time, vessel, location, party size, and gender of the refusing individual. When a visitor refuses, the next individual will be stopped and asked to participate. The on-site questionnaire will take approximately 3 minutes to complete (see Appendix A). Respondents

will complete the on-site questionnaire and return it to the survey worker. The survey worker will thank the person for his or her participation. These participants will be sent the Cruise Ship Passenger mail questionnaire (Appendix E).

### Tour Boat Passengers

Tour boat passengers are the next largest group of visitors to GLBA after cruise ship passengers. The tour boat category is set by the Vessel Management Plan and is based on size rather than activity. In addition to specifying what vessel is considered a “tour boat,” the Vessel Management Plan specifies the number of tour boats that may enter Glacier Bay proper. Some tour boats provide smaller cruise experiences (including single and multi-day visits), whereas the Glacier Bay Lodge day-boat that leaves out of Bartlett Cove is a more typical one-day tour boat experience.

Because day-boat passengers are a substantial portion of tour boat passengers (approximately 30%), and they are often in close proximity to cruise ships, sufficient numbers of them will be sampled in order to estimate effects of exposure to cruise ships on these visitors’ experiences. A separate representative sample will be drawn from the remaining tour boat visitors. Many of these latter tour boat visitors enter on boats that depart from Juneau or Auke Bay and may or may not stop at Bartlett Cove. Because these are two independent samples and the contact locations are different, the methods for contacting day-boat passengers and other tour boat passengers will be described separately.

Day-boat tour passengers: The Glacier Bay Lodge “day-tour” boat operates out of Bartlett Cove, serving as both a tour transport and a ferry for backcountry visitors. The majority of passengers are visitors taking the eight-hour tour up bay to Margerie and Grand Pacific Glaciers. The remaining passengers (approximately 10%) are backcountry visitors (e.g., kayakers) who will be dropped off at one of the designated points up bay (i.e., camper drop-offs). These backcountry visitors will be contacted as part of the backcountry survey (see below). This is because some backcountry users are only picked up by the day-boat and would not be at the dock in the morning and those backcountry visitors being dropped off by the day-boat are busy loading their equipment during the time day-boat contacts are planned. The contact sheet includes a question asking whether they will use the day-boat services. Based on this information, a representative sample of 55 backcountry visitors who were also passengers on the day-boat will be sent a Motorized Visitor mail questionnaire (Appendix F) that asks them about their time on the day-tour boat, rather than their time in the backcountry. Thus, ten percent of the day-boat sample will be backcountry visitors who were also passengers on the day-boat.

Each eligible “day-boat” passenger will be identified based on the sampling interval. The sampling plan will randomly select a representative number of weekend and week days and will indicate the sampling interval at which to contact day-boat visitors at the Bartlett Cove dock. In order to contact a representative sample of day-boat visitors, the sampling plan will include a time component so that visitors arriving at the dock early and late are both represented. The survey worker will approach passengers on the dock prior to boarding the boat, introduce the survey and ask him or her to participate. A sample of approximately 551 day-tour boat passengers will be contacted during the sampling periods. Refusals will be

recorded. When a passenger refuses to participate, the survey worker will record the time, date, party size, and gender of the refusing individual (See Appendix K for log). When a visitor refuses, the next individual will be approached and asked to participate. The on-site questionnaire will take approximately 3 minutes to complete (Appendix B). Respondents will complete the on-site questionnaire and return it to the survey worker. The survey worker will thank the person for his/her participation. These participants will be sent a Motorized Visitor Mail Questionnaire (Appendix F).

Other tour boat passengers: Passengers on these “other tour boats” spend multiple days on board with one of those days in GLBA, specifically Glacier Bay proper. Whereas these boats’ size classifies them as tour boats for vessel management purposes, the passenger experience is more akin to a cruise on a smaller boat. The Lindblad Expedition vessels hold 62 passengers, the Cruise West vessels hold 78 to 84 passengers, and the American Safari vessels hold 22 -39 passengers. In addition to fewer guests, these smaller boats are able to access areas of the park that the larger cruise ships cannot.

All three cruise companies offer several itineraries that include GLBA as a destination. Cruise West’s and Lindblad’s itineraries also include Juneau as the starting or ending point of the cruise, whereas American Safari operates out of Auke Bay. Accordingly, the survey worker will contact passengers in both Juneau and Auke Bay. The sampling plan will be set such that operators, vessels, and length of stay in Glacier Bay are represented proportionally in the sample. A total of 584 visitors aboard these other tour boats will be contacted.

Logistical scoping during 2007 included discussion with a member of the Lindblad Expedition staff. His recommendation was to contact their passengers on board as they have their final breakfast (for those disembarking) or first dinner (for those embarking). The specific details of participant selection will depend on the number of passengers to be contacted per voyage and the time available for contacting individuals. Although a general project introduction may be presented to the group, one-on-one contact with individuals is planned to increase participation. Participants will be selected based on the layout of the dining room, with specific seats randomly selected beforehand (these seats will be different for each voyage). Visitors in those seats will be contacted directly and asked to participate. If they refuse, the visitor in the next seat will be contacted.

Logistical scoping during 2007 indicated that Cruise West passengers could be contacted as they disembark in Juneau. This procedure would involve contacting every nth passenger as they leave their vessel and asking them to participate in the survey. Depending on the number of cruises in 2008, it is possible that the number of passengers in the planned sample will be more than can be reasonably contacted as passengers disembark. Further discussions with Cruise West staff will be needed to determine if there is a means to access passengers either on-board (as with Lindblad) or in the hospitality room that the company maintains in the hotel across from the dock. The chosen method must result in a representative sample (each passenger is equally likely to be selected to participate). One possible method would be to select participants based on the layout of the room, with specific seats randomly selected beforehand. Visitors in those seats would be contacted directly and asked to participate.



Discussions with American Safari during the 2007 logistical scoping indicated that it would be possible to contact passengers either at their first meal or last meal aboard ship (both in Auke Bay). The specific details of participant selection will depend on the number of passengers to be contacted per voyage and the time available for contacting individuals. Although a general project introduction may be presented to the group, one-on-one contact with individuals is planned to increase participation. Participants will be selected based on the layout of the dining room, with specific seats randomly selected beforehand (these seats will be different for each voyage). Visitors in those seats will be contacted directly and asked to participate. If they refuse, the visitor in the next seat will be contacted.

Visitors who visit Glacier Bay proper aboard Lindblad, Cruise West, or American Safari vessels will complete the Charter and Tour Boat Visitor contact sheet (Appendix C) and receive the Motorized Visitor Mail Questionnaire (see Appendix F).

#### Charter Boat Passengers

Fourteen charter permits were distributed during 2007 that allowed vessels to enter Glacier Bay Proper from June 1 to August 31 (peak season). MAST (charter company) is phasing out business in GLBA and may not work there in 2008 at all.

The charters operate out of a number of Southeast Alaska ports, with Juneau and Gustavus being most common. However, many operators are flexible with regard to personalized itineraries, including starting and/or ending port, whether GLBA is visited, and for how long. Furthermore, most charters offer several basic itineraries for different types of trips, and these also vary in whether people visit Glacier Bay proper. Given the variability in charter trips for even a single operator, strong communication with charter operators is essential for success in sampling these visitors. Discussions with charter operators during the logistical scoping in June 2007 suggested that they were very willing to cooperate.

The sampling plan will be designed to draw a sample that represents different operators and vessels (if an operator has multiple vessels) in proportion to the number of visitors they serve. Because charter companies' schedules can vary significantly each year, and many charters are required to be pre-booked, the sampling plan will be based on 2008 visits to the extent possible. On-going communication throughout the season will ensure that changes to operator schedules are reflected in our sampling plan.

Charter boats provide both single and multi-day trips to Glacier Bay proper, with more people visiting for single than multiple days. Single-day visitors aboard charter boats numbered 587 in 2005 and 1,095 in 2006, whereas overnight visitors aboard charter boats totaled 305 in 2005 and 307 in 2006. It is estimated there will be approximately 1,000 single-day and 305 overnight passengers visiting Glacier Bay proper aboard charter boats in 2008. The sampling plan will be designed to produce a sample that is representative of the length of time visitors spent in Glacier Bay proper (i.e., multiple-day versus single-day trips).

A total of 471 people who visited Glacier Bay proper aboard charter boats will be contacted. The contact procedures for visitors aboard charter boats are likely to vary somewhat by operator because of differences in their operations (e.g., port location). Contacts with

passengers may occur prior to or after the passenger's actual visit to Glacier Bay proper, depending on the charter's specific itinerary. Whenever possible, a face-to-face contact between our survey worker and the charter boat passengers will be arranged. At that time, the survey worker will introduce the study and ask passengers to participate. Specific passengers will be identified using a random selection process based on date of birth. A random list of dates will be generated prior to the start of the season. The first person selected will be the person on the boat with the birthday closest to the first date on the list. The second person selected will be the person on the boat with the birthday closest to the second date on the list. The survey worker will proceed through the list over the course of the summer season.

It is possible (although expected to be rare) that a charter's schedule would change during the trip (e.g., because of weather or client preferences) so that the survey worker would not be able to make the contact directly. When a face-to-face contact between our survey worker and the charter boat passengers to be sampled is not possible, arrangements will be made to have the charter operator introduce the study by distributing an information sheet describing our survey. The information sheet will ask people to provide their names and phone numbers, if they are willing to participate. These names will be compiled into a list, and every nth person will be sampled from the list and asked to participate in the study. When collecting the contact list, the survey worker will meet with the charter operator and complete the survey log for passengers not providing contact information.

Visitors who spent time in Glacier Bay proper aboard charter boats will complete the Charter and Tour Boat Visitor contact sheet (Appendix C) and receive the Motorized Visitor mail questionnaire (Appendix F).

#### Private Vessel Passengers

Private vessel permits are valid for up to seven days, and most visitors using private vessel permits are overnight visitors (in 2006, 1,264 out of 1,527, or 83%). All private vessels must stop at the Visitor Information Station and the captains participate in the orientation on their first trip of the season. Captains entering on subsequent trips are required to radio the VIS upon entry to Glacier Bay proper and provide their names and permit numbers. Most captains who enter the park multiple times are local Southeast Alaska residents. According to 2003 data, 45% of trips were subsequent re-entries and 55% were initial entries.

The survey worker will contact visitors on private vessels entering for the first time during the season when they dock in Bartlett Cove. Those agreeing will complete the Motorized VIS Contact Sheet (Appendix B). When vessel captains radio the VIS on subsequent re-entries, VIS staff will request permission for the survey worker to contact them about the survey. The survey worker will contact the visitors, ask them to participate, and have them complete the contact sheet. Visitors who make multiple trips to the park during the 2008 season will only be sent a survey for the first trip in which they agree to participate. The sampling plan will specify a representative set of days and the number of visitors to be contacted on each day. A total of 468 visitors entering on private vessel permits will be contacted and the sampling plan will proportionally represent first-trip and subsequent-trip visitors, and single and multi-day visitors. These visitors will be sent Motorized Visitor mail questionnaire (Appendix F). A contact log will be maintained by the survey worker for visitors entering on private vessels

for the first time during the season, and the survey worker will work in conjunction with VIS staff to maintain a contact log for visitors on private vessels entering on subsequent trips.

#### Non-Motorized Backcountry Users

All independent backcountry visitors are required to obtain backcountry permits at the VIS and will be contacted at this time and asked to participate in the project. The survey worker will make the majority of these contacts. However, he/she will not be present at all times. It is anticipated that the request for survey participation can become part of the routine or default permit procedure. For this to be successful, all VIS staff must realize that collecting survey contact information is of equal importance to the rest of the orientation procedure. To ensure the success of these VIS staff contacts: 1) A specific protocol will be established in conjunction with the park ranger in charge of the VIS staff, 2) VIS staff will be trained in this protocol by the project survey worker, 3) The survey worker will collect completed contact forms from the VIS staff within 48 hours and review for completeness, and 4) Any discrepancies in the VIS staff compliance with the agreed upon protocol will be discussed with the specific ranger(s), the ranger in charge of the VIS, and the project manager.

The companies<sup>2</sup> that manage the guided kayaking in GLBA are very willing to cooperate. All their clients have a pre-trip dinner in Gustavus, and Alaska Discovery has suggested then would be an ideal time for our survey worker to make contacts. The survey worker will select participants using a random selection process based on date of birth. A random list of dates will be generated prior to the start of the season. The first person selected will be the person with the birthday closest to the first date on the list; the second person selected will be the person with the birthday closest to the second date on the list; etc. The survey worker must have good communication with the kayaking representatives in order to coordinate the timing associated with these contacts.

All backcountry visitors agreeing to participate will complete the Backcountry contact sheet (Appendix D) and the Backcountry mail questionnaire (Appendix G).

3. Describe methods to maximize response rates and to deal with issues of non-response. The accuracy and reliability of information collected must be shown to be adequate for intended uses. For collections based on sampling, a special justification must be provided for any collection that will not yield "reliable" data that can be generalized to the universe studied.

Initial contacts with park visitors will be face-to-face and made by trained project personnel to increase participation rates. The primary data collection instrument is a mail survey. To maximize response rate, a multi-phased contact approach will be used (Dillman 2000). The mail questionnaire will be sent within one week of contact and include a pre-addressed, stamped envelope for respondents to mail the completed questionnaire to the University of Washington for raw data retrieval and analysis. A follow-up thank you/reminder letter will be sent out one week after initial mailing; a second letter and questionnaire will be sent out three weeks after initial mailing; and a third letter and questionnaire will be sent out four weeks after the initial mailing (see Appendix J for copies of these letters).

Standard tests for non-response bias will be conducted. The first set of tests will examine

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<sup>2</sup> Alaska Discovery and Alaska Mountain Guides provide guided kayaking services in GLBA.

potential non-response bias due to visitors who refuse to participate at all. These tests will be based on observed and recorded characteristics of respondent parties refusing to participate (e.g., time, day, weather, location, gender, and party size; Appendix K includes the contact log). The second set of tests will examine non-response bias due to respondents who completed the on-site questionnaire, but not the mail questionnaire. These tests will be based on respondents' answers to the on-site questionnaire. If significant differences are observed for specific variables, further analyses will be conducted to determine the extent of potential bias and whether statistical techniques such as weighting are necessary to provide unbiased results. A complete description of these tests will be included in the final report, and the implications of non-response bias (if any) for interpreting the results will be discussed.

4. Describe any tests of procedures or methods to be undertaken. Testing is encouraged as an effective means of refining collections of information to minimize burden and improve utility. Tests must be approved if they call for answers to identical questions from 10 or more respondents. A proposed test or set of tests may be submitted for approval separately or in combination with the main collection of information.

Survey questions were derived through discussions with NPS staff, review of related literature, and qualitative interviews with park visitors during 2007. In addition, the draft survey instruments were reviewed by GLBA staff; Darryll Johnson, Social Scientist and Research Coordinator of the PNW CESU; and four independent social science peer reviewers. Suggestions on question form and content were integrated into the final draft survey instrument.

A pilot test (of more than 10 respondents) was proposed for 2007 under the NPS expedited review process. However, Office of Management and Budgeting determined that the proposed pilot study would require full review. Because insufficient lead-time was available to complete the full review for the 2007 summer season, the pilot study was not conducted. Park managers require the findings from the primary data collection to be available during the 2009 winter when findings from all studies (effects of cruise ships on wildlife are being examined by other researchers) will be considered and implications for policy discussed. For the findings to be available, the primary data collection needs to occur in 2008.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the agency.

Mark Vande Kamp of Protected Area Social Science Unit, College of Forest Resources, University of Washington consulted on statistical aspects of the design. His number is (206) 543-0378.

Darryll Johnson of Pacific Northwest Cooperative Ecosystems Studies Unit, University of Washington consulted on statistical aspects of the design. His number is (206) 685-7404.

Jane Swanson of Protected Area Social Science Unit, College of Forest Resources, University of Washington designed the sampling plan and associated sample sizes and will conduct and oversee the statistical analysis of the information. Her number is (206) 685-9150.

The following four individuals reviewed the draft work plan including survey instruments, contact methods, sampling plan, and an overview of proposed statistical analyses.

Lee Cerveny, Ph. D. of the Pacific Northwest Research Station, U.S. Forest Service. Her number is (206) 732-7832.

Steve Lawson, Ph.D. of Department of Forestry, Virginia Polytechnic Institute and State University. His number is (540)231-8303.

Robert Manning, Ph. D. of Park Studies Laboratory, School of Natural Resources, University of Vermont. His number is (802)656-3096.

Stephen McCool, Ph. D. of College of Forestry and Conservation, University of Montana. His number is (406)243-5406.

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