Managing Exit Glacier's Popularity: Social Science Looks at Visitor Experiences

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Introduction

The developed area at the base of Exit Glacier provides visitors with the rare opportunity to safely approach a glacier on foot. Visitors can park less than a mile from the glacier terminus and walk to the face of a towering mass of ice (Figure 1). When the ice melts into safe configurations, visitors hiking the Overlook Loop Trail can now touch the glacier at selected locations. The Exit Glacier developed area (hereafter, Exit Glacier) is the only area of Kenai Fjords National Park that is accessible by road and is a popular tourist destination, with 132,495 visits in 2003 (National Park Service 2004). The developed area also serves as the midpoint for the Harding Icefield Trail that leads Visitors upward through sensitive alpine habitat. Visitation to Exit Glacier grew quickly in the early 1990s (National Park Service 2004), and in 2001 the road to the area was paved, creating the potential for even greater visitation. A 1995 Development Concept Plan for the area (National Park Service 1995) strongly recommended that studies of visitation be completed to help managers prevent unacceptable impacts due to increased visitation.

When we began talking with Kenai Fjords managers about conducting studies of visitors at Exit Glacier, they had already decided to use the Visitor...
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What makes a visit to Exit Glacier special or unique?

- Accessibility
- Proximity
- Physical
- Financial
- Learning Opportunities
- The Reality of Glaciers
- Use of Environment

* and a represent a common theme

![Figure 3. Conceptual map of responses to one of the primary questions in the qualitative interview study of visitors to the Exit Glacier developed arts.](image)

Experience and Resource Protection (VERP) framework (National Park Service 1997) to plan for and manage possible negative impacts of recreational use. As they begin to apply the VERP framework to the planned pink-identified a wide range of information about visitors and their experiences needed to apply VERP effectively. Some of those needs are described by questions such as:

- What do visitors see as the "Exit Glacier experience"?
- Do some groups of visitors have characteristics or engage in activities that make them more sensitive to the presence of other visitors?
- To what extent (if any) does the number of visitors who are present currently affect the quality of visitor experiences at Exit Glacier?

In order to address this range of questions, we designed a research program that included a variety of studies using a number of research methods. In this article we briefly describe several studies that used different research methods, the reasons why each method was chosen, and some highlights of the information we collected. We will also discuss several findings of the research that illustrate how the diverse information was integrated to help managers of Exit Glacier plan policies to effectively manage visitation.

Research Methods and Questions

Of the questions given high priority by managers, the four listed above are given as examples, because each of them was addressed by a different research method. The four research methods were: 1) qualitative interviews, 2) a mail survey, 3) a quasi-experimental survey of reactions to experiences, and 4) an experimental survey of reactions to photographs.

Qualitative Interviews

Qualitative interviews are conducted verbally by trained interviewers and generally use open-ended questions that encourage respondents to discuss opinions or experiences that may be complex (Thomas and Todd 1998). The method is qualitative because it describes the range of opinions or experiences present in a population. In contrast, quantitative methods provide specific measures of the number of visitors with particular opinions or experiences.

Qualitative interviews were chosen to address the question, "What do visitors see as the "Exit Glacier experience"?" because the question was difficult to answer by asking visitors anything other than open-ended questions. We could have constructed closed-ended questions for use in a mail survey or other quantitative study, but existing information was insufficient to support confidence in the results. It was possible that visitors might have complex and unique experiences that we did not anticipate or understand. To be effective, closed-ended questions, such as those asking respondents to circle answers from a list, should include all the common responses, and ideally, the least common responses as well. If they do not, they are likely to limit or bias responses.

Kathleen Anderson, a research scientist trained in qualitative interviewing, who led groups of Exit Glacier visitors several probing questions. After reviewing and analyzing the interviews, the researchers fell into four broad categories. Figure 1 shows the categories as well as some more specific themes (see Yada Komp et al. 2003 for a more detailed report). The most common response revolved around the theme of proximity. Participants were delighted to be able to get so close to the glacier. One woman said, "I think that probably the uniqueness is that you can get right up there at the glacier and actually touch the ice."

Mail Survey

Among other purposes, the mail survey addressed the question, "Do some groups of visitors have characteristics or engage in activities that make them more sensitive to the presence of other visitors?" The primary advantage of a mail survey is the ability to send a relatively large number of questions to visitors for completion at their leisure. Maximizing interest on visitors' recreation is important, and mail surveys also tend to reduce refusals to participate.
High response rates increase the validity of the survey by making the results more likely to reflect the views of all visitors. A second advantage is the short contact time, allowing survey workers to approach and obtain the cooperation of a larger sample of visitors in a given period of time. Our mail survey distributed two different versions of the study questionnaire and obtained responses from 435 and 433 respondents. Approximately 75 percent of respondents in the study questionnaire returned completed questionnaires. A wide range of questions about visitors, their activities, and their experiences at Exit Glacier provided a basis for various visitor similarity.

A statistical technique called cluster analysis was used to identify groups of visitors who felt similar motivations for visiting Exit Glacier. A detailed description of the analysis and the details of results can be found in a project report (Andrew et al. 2003). The cluster analysis and related statistical tests were intended to detect visitor groups who were particularly sensitive to other visitors, but the results consistently showed a high degree of overlap in the movement of the different groups of visitors, the activities in which they engaged, and the levels of crowding they reported. For example, the survey respondents agreed that the group identified by the cluster analysis fell between the low and high categories on the crowding scale. The lowest number was labeled "not at all crowded." In general, Exit Glacier visitors showed considerable similarity when compared to visitors at the national park. The same results were also found for the perception of other visitors in these experiences.

Quasi-experimental Survey of Reactions to Experiences

A quasi-experiment is a research design in which observations are made across a range of conditions that are not randomly assigned (Campbell and Stanley 1963). For example, the respondents in our survey on the Overlook Loop Trail approached different numbers of visitors, but rather than manipulating those numbers and randomly assigning respondents to different conditions, we simply recorded the level of visitation they encountered.

We selected a quasi-experiment to address the question, "To what extent (if any) does the number of visitors who are present currently affect the quality of visitor experiences at Exit Glacier?" primarily because it was not feasible to manipulate visitation levels on the Overlook Loop Trail at the time of the study. This concept that we examined the relationship between the levels and visitor experiences in this area of Exit Glacier. If the VEP model process was to establish an accurate balance between visitation and its impact on visitor experience, then we examined the Overlook Loop Trail because it is the area in which visitors approach close to the glacial ice. Visitors also approach the glacier from the Overlook Trail, but only when that area is not blocked by Exit Creek.

Respondents in the study were approached by a survey worker stationed at the end of the trail section that most closely paralleled the glacial ice. Visitors who had just walked near the ice were asked to answer questions about the number of other visitors they encountered. Responses from visitors who were within the photographs taken during their visits (Figure 4).

A quasi-experiment is an experimental model that allows visitors to be observed in their natural environment. In this study, the number of visitors was manipulated to observe the number of visitors who were visible in the photographs taken during their visits (Figure 4).

**Figure 4:** Photographs of the type used in the experimental survey of reactions to simulated use levels. Each photo used the same background, and the number of visitors in the picture was manipulated digitally.
The opportunity to closely approach a glacier is a focal point of visitors’ experiences at the Exit Glacier developed area.

Experimental Survey of Reactions to Photographs

The survey of reactions to a range of simulated use levels involved a repeated-measures experimental design (Campbell and Stanley 1966). Respondents made a series of different qualitative judgments about six photographs. The experimental manipulation was contained in the photographs—each showed the same view of the Overlook Loop Trail, except that the number of visitors who were present ranged from zero to 50 (Figure 6). This type of “image capture” survey has been used in a wide variety of settings (Manning et al. 1996, Manning et al. 1999, Manning et al. 2002), but it was particularly well suited to Exit Glacier because it allowed us to collect judgments about three levels of visitor use data are currently used.

In general, the photos showing 20 to 40 visitors on the Overlook Loop Trail were the point at which more than half the respondents rated the levels of visitor use negatively. In one of the most interesting judgments, about a quarter of respondents said that the photo with 30 visitors showed the use level that should prompt the NPS to restrict visitation. However, another quarter of respondents said that the NPS should not restrict visitation at all.

The research literature has not established that respondents’ reactions to the photos correspond to their reactions if they were to actually experience the pictured conditions. Therefore, the experimental and quasi-experimental surveys were designed to test the level of correspondence by asking respondents to make the same series of judgments. However, the overlap in the range of visitor density depicted in the photographs and the range of actual conditions turned out to be minimal. The photographs taken in the quasi-experimental study showed that approximately three-quarters of the respondents experienced conditions in which fewer than ten visitors were visible, and 99% experienced visitor densities lower than those shown in the third ICS photograph (20 visible visitors). Thus, the statistical power of the comparison between the studies was too weak to support firm conclusions about the correspondence between the results. Regardless, there is currently no other practical method to gather data concerning visitors’ evaluations of visitor density levels outside the current range of Exit Glacier.

Integrating Data Across Studies to Support Conclusions

In addition to providing a range of data suitable to addressing a wide variety of questions, the results of this study can also be combined in at least two useful ways. First, results from different studies that address the same question serve as a form of triangulation that can increase confidence in the validity of their shared conclusion. Second, the results of studies addressing slightly different questions can be combined to support conclusions that neither study could address independently.
Translating can be seen in the results of the interview and mail surveys. One conclusion of the qualitative study was that many visitors felt that the ability to clearly approach the glacier was an important aspect of their experience. Several results from the mail survey also emphasize the importance of approaching the ice. For example, when choosing from a list of 15 reasons more than three-quarters of respondents reported that “Seeing Ice Closeup” or “Walking Up to and Touching the Glacier” were more important to the quality of their experience. Together, these and other results of the two research studies emphasize that approaching the glacier is a critical aspect of visit experiences.

The number of visitors on the Overlook Loop Trail is significant to the VEP process because it is a potential indicator that might be monitored to project visitor experiences. The experiment survey and the open-ended experimental survey both address questions about the relationship between visit levels and experience quality on the Overlook Loop Trail. However, these differences allow them to provide data that are unique in their implications for the VEP process. For example, the results of the open-ended experimental survey showed that low visit levels for current visitor density was too high enough to document even their experiences. This finding suggests that managers can allow a visit level to exist and still provide the experience desired by current visitors; but it does not suggest the point at which future visitors would feel that the visit level was different from their experiences. Future research may find that the experimental survey reflect visitors’ judgments of high levels of visit that might occur in the future. By taking comprehensive and judgments about a range of photographs that led off-high levels much higher than current levels, the study provided data that can help managers make more informed decisions about the minimum visit level they should allow on the Overlook Loop Trail before taking action.

Conclusion

The multi-method research program undertaken at Exit Glacier was not without drawbacks. The research design of the study was required to have diverse skills and interdisciplinary collaboration. Long measuring the study was complex, and field workers sometimes had difficulty understanding and carrying out the many different tasks they were assigned. All in all, however, it was cheaper to conduct the study concurrently than to spend more on the separate study. The multi-method research program would have to be conducted in collaboration with the highest priority studies. Despite these drawbacks, the research program provided a wealth of information useful for planning for the future management of Exit Glacier. However, we still have not even a few small portions of the data have been described in this article, but we hope that they illustrate how the breadth of the multi-method research program provided a comprehensive set of information about visitor experiences and visit levels. Such information can help managers develop policies to ensure that the quality of visitors’ experiences is not degraded at the level of visit experience in the Exit Glacier developed area.

REFERENCES


