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March 10, 2003

Mark E. Vande Kamp Ph.D., Research Associate
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Dear Mr. Vande Kamp,

Thank you for the opportunity to review the Alagnak River work plan and draft user survey proposed for implementation during the coming 2003 season. The survey is a significant improvement over the draft survey released over a year ago and the work plan addresses many of the concerns we initially had with the survey design. Although we initially had concerns about the relative absence of management-related questions (in contrast to other river surveys we have reviewed), the work plan provides adequate justification for not including them. In attempting to provide constructive comments, we have focused on identifying sections of the draft work plan that need improvement. However, some of the procedures and/or guidelines described in the draft work plan are quite well done, such as the second full paragraph under ***Accuracy of the Data*** (page 6) describing the general limitations of the survey.

The results of this survey will be useful to both the State of Alaska in our management of public uses of fish, wildlife, state lands, and state waters, and the Service for management of the uplands within the Wild River corridor. Therefore, we have considerable interest in being sure the survey will provide meaningful data. The following summarizes our comments and suggested revisions for the Alagnak Wild River work plan and user survey.

Our comments are categorized by type, as noted by each section title. We provide citations to the literature in instances where we refer to study design, questionnaire development, or data analysis techniques. The citations included are limited to literature that may not be well known or familiar. Conversely, citations related to standard techniques for conducting public surveys are not necessarily listed (e.g., pre-testing of survey instruments).

GENERAL COMMENTS

- The objectives of the study are too broadly stated to support the specific lines of inquiry. It is difficult to determine how some of the questions are related to objectives (e.g., anticipated bear sightings) and to effectively evaluate and prioritize questions under the stated objectives. We urge the objectives be more specific.

- We agree with the authors that the draft survey instrument is too long and complex, thus the respondent burden (both in time and cognitive skills) would be very high. Although only 42 numbered questions are shown, the sub-questions and multiple-item questions to be cognitively addressed total 140 requests for information. Considerable shortening of the survey would encourage completion of the whole instrument to acquire reliable quantitative data. Clarifying the objectives will help to prioritize data needs, e.g., user characteristics, motivations, evaluations of visitor experience, knowledge. Then, based upon the clarified objectives, questions not central to the study and of lower priority can be removed. (Page 9 of the draft plan notes that some questions will likely be eliminated, so we endorse that goal.)

- Pre-testing is very important, particularly for newly developed questions, however, the issue of pre-testing of the survey instrument is not addressed in the draft work plan. Pre-testing procedures should be developed and described in the work plan.

- We still question why some of the questions were not divided by river segments. Although pages 32-33 in the work plan explain that such questions add to the complexity of the survey and non-local users may be unable to give accurate geographic locations, this is a critical issue when it comes to respondents perceptions of the condition on the upper versus lower river. The way the survey is designed now, the responses will be generalized to the entire river and problems that exist on the lower river (higher levels of development, crowding, litter, conflicts) will appear to be issues on the upper river as well, which may not be the case. Of particular concerns are questions 11-15, 17-19 and 21. At a minimum, allow these questions to be answered for "upper river" and "lower river" (defined as above and below the confluence or some other easily definable feature that respondents would likely remember). This would also help BLM in their Ring of Fire planning effort if they decide to take an active position in management of the lower river.

  Note that the work plan also states, "If the ARS identifies problems for which geographic information is desired, the most effective means of collecting that information would very likely be interviews with guides. Such a study remains a possibility for the future." As far as we know, ARS is not funded to do such a study so it's questionable whether it would take place. Also, guides would not be able to definitively ascertain what percentage of the responses to the questions listed above were attributable to experiences on the upper versus lower river.

STUDY DESIGN: SURVEY NONRESPONSE

- Regarding "User Contacts" portion (pages 4-5): Procedures for gathering and recording information regarding refusals to participate in the survey are needed for each contact type. Additionally, refusals should be documented at least in summary form in any reports resulting from the survey.

- Based upon recent evidence of mail survey response rates in Alaska, a 75 percent response rate may be overly optimistic. Inclusion of a complete survey packet with each survey reminder mailing should improve survey response rate.

- A substantive proportion of the sampled population will not respond to a survey (i.e., unit nonresponse). Procedures are identified to detect unit nonresponse bias (see top of page 7), but they do not describe data analysis procedures that might be considered to address this type of bias. The study authors are likely aware that there are at least two different approaches to address unit nonresponse bias issues, but the selection and basis needs to be provided for whichever one of these is selected:

  The first involves using information gleaned from observed differences in responses to questions for people that responded without reminders (i.e., to the initial mailing) compared to people who respond to each of the reminder mailings. A simulation model is then developed that essentially assumes that respondents to simulated additional reminder mailings (over and above the actual reminders) would respond to each question in a manner that could be predicted from the observed data categorized by mailing. This type of simulation model to address unit nonresponse essentially follows the procedures outlined by Drane et al. (1973). A similar model is described by Alho (1990).

  The second approach to address unit nonresponse bias issues is multiple imputation (MI) (Rubin 1987) using data augmentation procedures (i.e., Monte Carlo Markov-Chain iterative procedure or MCMC). MI procedures to address nonresponse in surveys has mostly been used to address item nonresponse (i.e., missing data resulting from respondents failing to respond to individual questions in the survey) and, as such, may not appear to apply to this issue. However, as identified by the work plan, information from the initial contact sheet will be available on all potential respondents. This "administrative data" could be used for both respondents and nonrespondents to implement an MCMC data augmentation procedure to impute the missing information. Then MI would be used to incorporate the uncertainty of imputation into estimates of parameter precision. This second approach to address item nonresponse (and unit nonresponse) is outlined by Zanutto and Zaslavsky (2002). Implementation of the MCMC algorithm to perform the data augmentation procedures and subsequent implementation of MI is described by Schafer (1997).

- Levels of item nonresponse are assumed to be no greater than 10% (page 7): "*Missing data for up to 10% of respondents to a particular question are generally not considered likely to alter the interpretation of that question*." Exceptions to the assumption will be noted in the text and charts for the report(s) resulting from this project. Item nonresponse rates of this relatively low level can, in some instances, bias the inferences made from a survey of this type, especially if item nonresponse occurs more frequently for different "types" of users than others. More importantly, since current plans call for combining information from the answers to multiple questions to, for example, " . . . *use in combination with other survey questions to see if identifiable user groups differ in their responses*" (page 9), then overall missing data rates for combinations of variables can be substantially greater than the individual rates observed. We recommend that some type of procedure be developed to evaluate the presence of item nonresponse bias and, to the extent possible, correct for item nonresponse. The MCMC-MI procdedures noted above and outlined by Rubin (1987) and Schafer (1997) would be one suggested approach for addressing this issue.

ADMINISTRATION OF MAILING

- The study proposes to send out reminder letters at 10 days, 24 days, and 38 days after the original questionnaire is sent. This timeline may be too compressed. It often takes 10-14 days for mail to reach some areas of bush Alaska. Similarly, mail to/from mailing addresses outside of Alaska may result in unnecessarily sending reminders to people who have already replied.

CONTACT SHEET

- Interviewers need to have clear answers prepared to clarify questions of contacted users. These answers (question-prompts) need to be consistent across all interviewers so that the same correct explanations are used to assist respondents with providing valid answers. Similarly, interviewers should be prepared to answer why the survey is being conducted and why particular questions are being asked. This is particularly important for any question that might be considered "threatening," e.g., asking for age and gender of each member of the contacted group without a good explanation may lead some contacts to decline to participate. Procedures describing the training of interviewers need to be provided in the plan.

- Use the word "*group*" throughout, in place of "*traveling party*."

- We request the contact sheet collect information on what river or river section was floated and on the date, time of day, and location where the contact interview occurred. This identifying data should be recorded with each interview for data control/quality purposes.

Question 2(Q-2): Is it relevant to collect information on the number of persons in a group under 18 years of age? Also, there seems to be redundancy in asking the number of people under 18 years old then asking the individual ages of each person (follow-up question to the YES response). What information is really needed? We suggest removal of the reference to "*children*" in question.

Q-5: Change "*over age 17*" to "*age 18 and older*" to be more consistent with Q-2, if asked.

MAIL SURVEY INSTRUMENT

In order to reduce participant confusion and improve visual presentation, we suggest checkboxes be used wherever possible for questions with a specified list of response categories (instead of the "circle the number" approach, e.g., Q4, 5, 7, 11, 12, 14, 15, 16, 17, 19, 21, 30-34, 39, 40.

LOW PRIORITY QUESTIONS TO CONSIDER DELETING

It does not appear that the following questions are central to the study objectives, even though the information may be of interest. We suggest the following questions be removed to reduce overall length and improve the potential for completed responses and a higher response rate.

Q-22 & Q-23: There is no justification for these questions regarding bears in the survey research plan.

Q-24 & Q-25: These are "threatening questions" in which the potential for social desirability bias is high (e.g., most people do not want to appear "stupid" by saying "No, I wasn't aware of the designation."). Results of these questions are not likely to be reliable estimates or valid measures of the information desired (e.g., knowledge of the percent of visiting persons who <u>actually</u> knew of the designation).

Without explaining to the public all the details of who manages which portions of the corridor, a better question may be to ask how respondents obtained information about the river or first became aware of the river (a check-one-or-more type question): commercial provider, web, travel book, magazine article, friends, NPS literature, etc. This could help determine how best to distribute information to visitors in the future.

If the NPS insists on including question 25, there should be an accompanying question: "Prior to taking this questionnaire, were you aware that the management of all the waters, river and lake bottoms, and gravel bars on the Alagnak (including Nonvianuk and Kukaklek lakes and the Alagnak and Nonvianuk rivers) are owned and managed by the State of Alaska

On a similar note, we are still interested in the Service's response to DGC's January 3, 2003 letter to Ralph Tingey concerning the management of portions of the corridor outside the Preserve that are designated under Title VI, Section 603 rather than Section 605 under ANILCA

Q-28: This question is too general to provide much useful information. It may also be a leading question, giving the impression that use levels are already damaging natural resources without noting which specific "natural resources" are being affected. A case could be made that people avoid marking responses such as #3 due to the desire to provide socially acceptable answers.

Should you choose to retain this question, we recommend re-phrasing to be more inclusive of all state and federal managers with responsibilities in the area. Also clarify intent of question by changing "regulate visitor use" to "limit visitor use." Federal and state agencies already regulate visitor use.

Suggested Change:

> If the number of visitors to the Alagnak Wild River corridor were to grow over time, use levels might result in damage to <u>natural resources</u>. What do you think federal and state agencies ought to do about this issue? *(check one box)*

- ❑ Should limit visitor use to prevent damage to natural resources even if it means decreasing my opportunity to visit the river.
- ❑ Should monitor this situation and limit visitor use if there is clear evidence that significant damage is occurring to natural resources.
- ❑ Should not limit visitor use of this area based on damage to natural resources

Q-29: Without a definition or measurement of "quality" of the visitor's experience, this question is both too general and leading, hence would produce little useful information. Researcher should focus on identifying specific impacts to natural resources and/or specific measures of the visitor experience in order to reliably ascertain whether users perceive real impacts and support specific management actions to address them.

Should you choose to retain this question, we recommend re-phrasing the question to:

> If the number of visitors to the Alagnak Wild River corridor were to grow over time, use levels might decrease the quality of visitors' experiences. What do you think federal and state agencies ought to do about this issue? *(check one box.)*

- ❑ Should limit visitor use to prevent decreases in the quality of visitors' experiences even if it means decreasing my opportunity to visit the river.
- ❑ Should monitor the situation and regulate visitor use if there is clear evidence of significant decreases in the quality of visitors' experiences.
- ❑ Should not limit visitor use of this area based on the quality of visitors' experiences.

Q-30 & 31: Most everyone filling out this survey will report having "seen a park ranger" because most will have been contacted by a person, who will be perceived as a ranger even if a park "volunteer". It is unclear whether people would have a "preferred" level of ranger contact while in a remote area at considerable expense.

Q-37: The relevancy of this question to the stated objectives is not apparent.

Q-38: This question might be construed as moderately threatening (privacy issue), and potentially suffers from social desirability bias (people might want to report that they are members of the "information-highway," whether they are or not). Although we can understand the desire to include this question in the survey, we suggest dropping this question to reduce response burden.

REMAINING QUESTION-SPECIFIC COMMENTS

Several questions (e.g., Q1, Q4) use the phrase "DURING THE TRIP WHICH YOU WERE CONTACTED" (and its variants), which presupposes that all users were only contacted once. Is this a valid assumption? If not, we suggest that individualizing each survey with information indicating when each person was contacted (date and possibly where) should be considered to remove the potential for confusion. Although confusion regarding some of the questions may not be a significant concern, it could be a source of appreciable measurement bias for others (in which respondents are asked to recall their specific experiences regarding their trip).

Q-1 & Q-2: These lack a time reference, e.g., in the past year, 3 years, 15 years, thus have a considerable potential for recall bias. For relatively avid floaters/anglers, this question will be burdensome and negative. What specifically are these questions trying to measure?

Q-4: The question about visiting other parts of Katmai National Park and Preserve "*during their trip when they were contacted* . . ." is confusing since by definition the trip during which they were contacted was to the Alagnak Wild River Corridor. We suggest alternative wording: "Did you or will you visit Brooks Camp or any other parts of the park before or after your visit to the Alagnak Wild River Corridor?"

Q-5: We suggest using less threatening wording, such as "Don't recall" or "Not sure."

Q-6: This question attempts to measure the respondent's opinion regarding satisfaction with their trip to the Alagnak Wild River corridor. Using the 1 to 10 scale has some justification in being asked to "rate your visit" because many users are probably familiar with the task and scale. However, this rating scale is inconsistent with scales presented later in the questionnaire. Additionally, the 1 to 10 rating suffers from no middle of the scale rating. Some people who would otherwise give a middle rating will not respond in that manner since the instructions indicate that one number should be circled. We suggest that scales of this type be consistently constructed throughout the questionnaire and use odd point scales.

Q-6a: The grouped arrow in Q-6 essentially directs respondents to report why they reported their experience as negative, which is confusing at best. Asking for their rating explanation if negative is also leading in nature, to only find out what people did not like about their trip. We suggest removing the complicated arrow direction and ask all respondents to explain their rating both negative and positive.

Q-5 & Q-6 (and others included for comparability with previous surveys): In the draft work plan (bottom of page 20), the authors note that these two questions are identified as being directly comparable to information collected in previous surveys of river users in Alaska. Although it is sometimes desirable to include questions that have been used in similar surveys to allow for meaningful comparisons of results, if the questions are worded poorly <u>or</u> likely to cause confusion in the context of the current survey, then the questions should either not be included (if comparability is the only reason for including the question) or should be re-worded (as suggested above), with some loss in comparability.

Q-7: Use "on your **recent** trip to" or be consistent with the rest of the survey using what replaces "*the trip you were contacted.*" The response scale that more closely corresponds to the question stem would be preferable (e.g., highly recommend to others, would not recommend). The question also needs to be reworded due to its broad results and leading nature.

Q-7a: We suggest removing this somewhat complicated arrow direction and ask all respondents to explain their recommendation, both negative and positive.

Q-9 parts 1-10: Although the responses to many of these questions will help land managers meet visitors' needs, questions 2-6, 9, 10, 19, and 20 seem purely academic and are issues that land managers can do little to address.

Q-9 (desired outcomes) may be more appropriate located after Q-10 (activities). Some respondents may not provide answers to all items in Q-9, thus may not respond to subsequent questions regarding activity as a result. Although many items used in Q-9 have been used in other surveys to measure desired outcomes (a multiple-measure approach is often used in social research), this list is extremely long and likely to negatively impact some respondent's willingness to complete the survey. Factor analyses in previous applications of these measurement scales suggest using a smaller list. Determining a smaller list of items might be one of many advantages with conducting a well-designed pre-test of the survey instrument.

An alternative (or supplemental) approach to reducing the items in the list of desired outcomes is narrowing down the motivational features to be measured. Care should be given to ensure that desired outcomes important to respondents are included. For example, none of the listed outcomes involves viewing wildlife. The order of the desired outcomes may negatively impact respondents' willingness to complete the survey, because the multi-measures of similar concepts are repeated one after another. Consideration should be given to starting the list with desired outcomes that are generally (as evidenced by similar studies) rated as highly important, as a technique to motivate respondents to complete this question.

Q-10, parts 4-5: Fly fishing, fishing using spin (ning?) gear, fishing with casting rod seem to overlap. Change to two questions: "fly fishing", and "fishing with spinning reel."

Q-13: We suggest revising the question to read: "In general, how crowded **did you feel** during your most recent trip to the Alagnak" to make it clear that this is their perceived level of crowding (consistent with previous Alaska river studies).

Q-18: Change "Humans" to "River Users"

Q-20: Change "bag their solid human waste" to just "carry out solid human waste." There are other methods for carrying out human waste without the use of bags.

Q-21: Potential recall problems with the follow-up questions? "Can't remember" option is a good idea.

Q-21c: Change to "…sound of OTHER CAMPERS who were not part of your group?" Otherwise respondents' counted nights could include nights camped near lodges, cabins, fishing parties who were not camping, and boaters passing by.

Q-26 & Q-27: The desired data results may be more important than Q-24 & Q-25, but they are still "threatening questions," likely to produce inaccurate results. Why and how important is the distinction between "prior to taking this questionnaire" and "prior to arrival?" The level of detail in the distinction may cause respondent frustration. Knowledge of these things "prior to arrival" may be the central question, but it may not be possible to accurately measure.

Q-34a, b, c: The information being requested in these questions may be subject to recall bias. When the survey arrives in the mail 10-20 days later, visitors may remember total number of days they fished during a visit to Alagnak, but hours per day fishing and hours per day floating are going to be much harder to remember. Thus, the data will be less precise than if collected during the contact interview. What data are actually needed?

Q-35 is complex and may be confusing to participants. What is column 4 trying to measure? We suggest dropping that column and note that this alternative answer may be threatening to some respondents. Instructions should be added that, if the participant "did not fish for," there is no need to answer columns 2 & 3. If Q-35 is included in the final questionnaire then consider dropping Q-33 and Q-33a as redundant, or drop Q-35 in lieu of Q-33 and Q-33.

Q-36: The wording of this question lacks clarity. Also, this question is redundant with Q-42 (final comments), so one or the other should be deleted.

Is it important to know the residency status (Alaska resident or not)? It may be useful to add a question in order to compare responses for local (Alaskan) and non-local (non-Alaskan) users.

SOUNDSCAPE: Page 30 in the work plan list two questions related to soundscape. These two questions do not appear in the draft survey so it's not clear whether or not they'll be included in the survey. We are not familiar enough with questions that elicit meaningful responses on sound to suggest a change in these questions. We do, however, recognize that noise is a significant issue that the State addresses on a daily basis (helicopters, motorized vehicles/craft, generators, noisy campers etc.) and do not object to a few questions addressing this issue.

We look forward to future communication and review of the final survey and study plan. Please contact me if you have any questions regarding these comments.

Sincerely,

/ss/

Don Perrin
Project Review Coordinator

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