



Social Science Program

Expedited Approval for NPS-Sponsored Public Surveys

1. Project Title Submission Date:	Merced River through Yosemite Valley Visitor Experience Survey (Yosemite National Park)	May 18, 2011
--	---	--------------

2. Abstract:	The overall purpose of the project is to collect information that will be used to inform the preparation of a comprehensive management plan. This project will measure visitors' perceptions of crowding, resource conditions, and management actions that may be used to address impacts from boating, "waterplay," swimming, fishing, picnicking, or other related river-related activities in the Merced River corridor through Yosemite Valley. Data will be used to identify standards of quality for boating and shore-based recreation use per viewshed, as well as identify support or opposition to potential management actions that might be used to address resource or experiential impact problems. Data will be collected through on-site questionnaires that will sample users both geographically (through the study area) and temporally (through the high use part of the season). Data will be integrated with planned NPS use data collection to allow correlations between use, impacts, and evaluations of use and impacts. (not to exceed 150 words)
---------------------	---

3. **Principal Investigator Contact Information**

First Name: **Last Name:**

Title:

Affiliation:

Street Address:

City: **State:** **Zip code:**

Phone: **Fax:**

Email:

4. **Park or Program Liaison Contact Information**

First Name: **Last Name:**

Title:

Park:

Park

Office/Division:

Street Address:

City:

State:

Zip code:

Phone:

Fax:

Email:

Project Information

5. Park(s) For Which Research is to be Conducted:

6. Survey Dates: (mm/dd/yyyy) to (mm/dd/yyyy)

7. Type of Information Collection Instrument (Check ALL that Apply)

- Mail-Back Questionnaire On-Site Questionnaire Face-to-Face Interview Telephone Survey Focus Groups

Other (explain)

8. Survey Justification: (Use as much space as needed; if necessary include additional explanation on a separate page.)

Social science research in support of park planning and management is mandated in the NPS Management Policies 2006 (Section 8.11.1, "Social Science Studies"). The NPS pursues a policy that facilitates social science studies in support of the NPS mission to protect resources and enhance the enjoyment of present and future generations (National Park Service Act of 1916, 38 Stat 535, 16 USC 1, et seq.). NPS policy mandates that social science research will be used to understand park visitors, the non-visiting public, gateway communities and regions, and human interactions with park resources. Such studies are needed to provide a scientific basis for park planning, development, operations, management, education, and interpretive activities.

The Merced Wild and Scenic River corridor through Yosemite Valley in Yosemite National Park has experienced increased visitation over the past decade. Higher use may degrade the quality of visitor experiences or increase biophysical and cultural resource impacts. The need to address these carrying capacity issues in the Merced corridor has become a major focus of park planning. As a new court-ordered river management plan is being developed and implemented, it is critical to understand visitors' attitudes and behavior, and their support for management actions that can be used to address visitor impact problems.

This visitor survey will help identify indicators, tolerances and preferences for impacts needed to establish correlations between use levels, impacts, and acceptability of management actions that address impacts. Because management actions may reduce public access, affect perceptions of

development and naturalness, or be costly, research is needed to explore visitors' evaluations of trade-offs between these consequences and reductions of impacts.

This survey will explore several impacts, including perceived crowding and normative evaluations of boating and shore-based use levels. The Crowding questions will use a 9-point scale that allows comparisons across settings. Normative questions will measure evaluations of boating densities and shore based use densities via photo simulations (Shelby et al., 1996, Manning, 1999, Manning, 2007, Manning, 2009, Jacobi, et al., 1999; Wang and Manning, 1999, Manning, et al., 2005, Manning, 2007). Acceptability of management actions will be measured on commonly-used support-oppose scales. The management actions outlined for respondents will represent currently considered and feasible actions regarding natural resource and visitor use management issues salient to existing planning efforts.

The survey will also include several standard format questions about user, group, and trip characteristics. These "profile" variables will be used to conduct additional analyses of evaluative data by various sub-groups, a common social science practice (Vaske, 2008). A single questionnaire will be used in this study.

9. **Survey Methodology:**
(Use as much space as needed; if necessary include additional explanation on a separate page.)

This study will use a cross-sectional sample design with roving and stratified data collection elements; the goal is to represent a cross-section of river users at diverse recreation use locations along the river.

(a) Respondent universe:

The respondent universe for the River Use Survey will include all adult park visitors (ages 18 and older) engaged in river-related recreation along the Merced River between Upper Pines Campground and El Capitan Bridge during the study period (June-July, 2011).

A total of 750 visitors will be contacted to participate in this study a final completed sample size of 600 is expected (see item 10 below).

(b) Sampling plan/procedures:

The sampling period is designed to include the river's peak-use period (typically June and July) when floating and shore-based activities are both popular. The extent of this period can be influenced by flows, and the study start date will be influenced by moderate flow levels between 200 and 800 *cfs* at the USGS gage at Happy Isles.

The survey will be administered to visitors at 6 locations along the river (Clark's Bridge and nearby campgrounds; Stoneman Bridge/Housekeeping, Sentinel Bridge/Superintendent's Bridge, Swinging Bridge, Sentinel Beach (floating take-out), and Devil's Elbow/El Capitan Bridge. These locations include a mix of moderate and higher use beaches, riparian areas, and boating use segments that are the focus of the survey questions

(evaluations of use levels and impacts).

Sampling will be conducted over 15 days, with each site visited for a portion of each day (8 hours total of sampling per day). The 15 days will be spread over three weekends to meet weekend/weekday strata targets (See Attachment 1- below). For any given day, longer (2 hour) sampling periods will occur at the most common boating take-out (every day) and two other locations (one-third of the days each). Otherwise, sampling will occur for approximately one hour at each location per day. To assure representativeness, the start time and starting location for each day will be randomized; the order of survey locations (traveling upstream vs. downstream) will also alternate each day. All sampling will occur between 9 am and 7 pm, with start times occurring between 9 and 11 am.

For each day, a trained surveyor will have a schedule that identifies locations and times for sampling. For each location, except the Yellow Pine boating take-out (see below), the surveyor will have a set “route” through the area (these are generally less than 0.3 of a mile in length). The surveyor will approach the first visitor group encountered along the designated route and ask them to participate in the survey. If members of the visitor group agree to participate, the eligible person(s) in the group whose birthday is closest to the sampling day will be asked to complete the questionnaire. Groups with five or more members will be asked to have two members complete the survey (using the next birthday to randomize the second participant). When the surveyor has completed his/her contact with the group, the surveyor will ask the next visitor group along the route to participate in the survey. This process will continue through the sampling period and along the location route. Shore and boating-based groups will be contacted at all locations when encountered, but if boating-based users are traveling on the river, no attempt to stop them will be made. Most “full segment” boaters are expected to be contacted at the Yellow Pine boating take-out, where surveyors will contact users at the beach or as they move to their vehicles or shuttle buses.

Visitors will be asked to complete the on-site questionnaire in the presence of the surveyor, who will answer any questions that arise and who will collect the surveys upon completion. A screening question will assure that participants will not be surveyed more than once for the study.

(c) Instrument administration:

Similar studies suggest interviewers at moderate to high use locations can survey about 10 groups per hour (Whittaker and Shelby, 2010). The surveyor for this study will target that rate at high use locations by (1) estimating the total number of groups present; (2) dividing that number by 10; and (3) then contacting every nth group along the “location route.” In very high density settings where groups are hard to distinguish, the interviewer may estimate number of people present and sample every nth person (who will then be asked about their group). At lower-volume locations (where there are less than 10 groups present), the interviewer will endeavor to sample all the groups at the location.

The surveyor also will maintain a survey log that tracks observations about interviewee's activities, location where contacted, craft type, shore use accessories, and group size. These variables will be integrated with survey responses in the database. After log information is recorded for a group, the interviewer will greet a member of the group:

“Excuse me, sir/ma’am. We’re conducting a study for Yosemite National Park to better understand visitor use in this area. Participation is voluntary and all responses are anonymous. Would you be willing to take no more than 15 minutes to help?”

If YES: “Thank you. Who in your group (who is at least 18 years old) has the next birthday (or two people if the group is 5 or larger)? Would you be willing to fill out this survey? Have you completed a survey at a different location along the river?”

If YES: “Thank you, but we can only accept one response per group per day. Thank you for your time.”

If NO: “Thank you. Please feel free to ask me any questions you have about the survey.”

If NO: “I understand. I hope you enjoyed your visit.”

If they consent to participating, the interviewee will be given the survey attached to a clipboard. Although the questionnaire will be self-administered, the surveyor will be available to provide assistance when necessary. If respondents refuse to participate and offer a reason, interviewer will code that reason in the log.

The survey includes questions about:

- 1) activities in the river corridor (i.e., stratum) prior to arriving at the sampling location;
- 2) other individual, group, and trip characteristics;
- 3) perceived crowding at different locations in the corridor and Yosemite Valley;
- 4) evaluations of boating use and shore-based use per viewshed; and
- 5) evaluations of management actions that might be used to reduce river use impacts.

Evaluations of different numbers of boats and shore-users per viewshed (two indicators of river experiences) will be elicited using two sets of four visual simulations (photographs) that illustrate a range of use density levels.

(d) Expected response rate/confidence levels:

A total of 750 groups are expected to be intercepted over 15 days (times eight hours per day) at six areas along the river (see attached appendices on sampling schedule and locations). Approximately 25% of the survey sampling effort will target “full segment” boaters at Yellow Pine boating take-out; the remaining 75% will target shorter segment boaters, swimmers,

anglers, picnickers, hikers, and groups relaxing at five other beach and riparian use areas along the river. Approximately 40% of sampling effort will occur on weekends and 60% on weekdays, but higher use levels on weekends may produce similar sub-samples for these two strata. About 25% of sampling effort will occur in mornings and 75% after noon; this conforms to typical river use patterns and the need to survey users after a portion of their river trip has occurred. The roving sample will start at random locations and then proceed upstream or downstream on alternate days. Based on previous roving sample surveys on rivers (Whittaker & Shelby, 2010), surveyors will average contact with slightly more than 6 groups per hour of sampling (including travel time between sites). At higher use times and places, rates may approach 10 to 12 per hour; but at lower use locations the rate may be as low as 3 or 4 per hour.

Based on previous studies using on-site visual simulation interviews employing pedestrian intercepts, a final response rate of approximately 80% is anticipated. A series of trail intercept surveys in 2006 at Acadia National Park (OMB 1024-0224, NPS 06-008) used the same type of questionnaire achieved response rates [Acadia Mountain (84%); Hunter's Beach (79%); Seawall (84%), at Valley Cove (86%); at Little Hunter's Beach (77%)]. An 80% response for this survey will yield approximately 600 completed surveys overall. Based on this, the overall sampling error will be approximately +/-4% at the 95% confidence level, while the sampling error for boaters is expected to be about +/-8% and the sampling error for shore-based users is expected to be about +/-5%. This will be sufficient for the park's planning purposes.

(e) Strategies for dealing with potential non-response bias:

Non-response bias will be examined by comparing selected characteristics of the sample population with characteristics (gender, group size, type of craft) observed and recorded in every group contacted using a survey log (attached). The results of the check for non-response bias will be reported, and implications for data interpretation discussed.

(f) Description of any pre-testing and peer review of the methods and/or instrument (recommended):

Both survey methods and questionnaire instruments have undergone review by Bret Meldrum and Niki Nicholas, Yosemite National Park, Resource Management and Sciences Division; and Jim Bacon, Yosemite National Park Planning Division. The questions in both surveys are similar to those used in previous studies at several other national park areas. All of the questions appear in (or are variations of) survey items in the NPS "Pool of Known Questions."

With a response rate of 80%, we plan to approach 750 individual. We expect that the initial contact time will be at least two minutes per person (750 x 2 minutes = 25 hours). For those who agree to participate (600), an additional 15 minutes will be required to complete the questionnaire (600 response x 15 minutes = 150 hours). The burden for this collection is estimated to be 175 hours.

10. **Total Number of Initial Contacts**

750

11. **Estimated Time to Complete Initial Contact**

2 mins

12. **Burden Hours:**

175

Expected Respondents:

600

Instrument (mins.):

15 mins

13. **Reporting Plan:**

The results of these information collection activities will be presented in a summary report to the NPS. Key estimates from the data will be descriptive in nature, primarily measures of central tendency (mean and median), dispersion (standard deviation), and frequency distributions. Some tests for differences in means and proportions by various sub-groups are expected, as well as correlations between evaluations and use levels (measured by a separate NPS descriptive use monitoring program). Analyses will generally follow standard methods for survey research in parks and recreation settings (Vaske, 2008).

One electronic version (in PDF and MS Word file formats) and 20 hard copies of the final report will be provided to the park representatives at the following address: Jim Bacon, 5083 Foresta Road, Yosemite National Park, 95389. One electronic version (in PDF file format) and 2 hard copies of the final report will be provided to the NPS Denver Service Center at the following address: National Park Service, Denver Service Center, P.O. Box 25287, Denver, CO 80225-0287. One electronic version (in PDF file format) and 2 hard copies of the final report will be provided to the NPS Social Science Program at the following address: National Park Service, 1849 C St., NW (2300) Washington, DC 20240, for inclusion in the Social Science Studies Collection.

References

Graefe, A., F. Kuss, and J. Vaske. 1990. *Visitor Impact Management: The Planning Framework*. Washington D.C.: National Parks and Conservation Association.

Jacobi, C. and Manning, R. 1999. Crowding and Conflict on the Carriage Roads of Acadia National Park: An Application of the Visitor Experience and Resource Protection Framework. *Park Science*, 19(2):22-26.

Manning, R. 2007. *Parks and Carrying Capacity: Commons Without Tragedy*. Washington, D.C.: Island Press.

Manning, R. 2009. *Parks and People: Managing Outdoor Recreation at Acadia National Park*. Hanover, NH: University Press of New England, 336 pages.

Manning, R. 2001. Visitor Experience and Resource Protection: A Framework for Managing the Carrying Capacity of National Parks. *Journal of Park and Recreation Administration*, 19(1):93-108.

Manning, R., Lawson, S. and Morrissey, J. 2005. What's Behind the Numbers? Qualitative Insights into Normative Research in Outdoor Recreation. *Leisure Sciences*. 27: 205-224.

Shelby, B. and T. Heberlein. 1986. *Carrying Capacity in Recreation Settings*. Corvallis: Oregon State University Press.

Shelby, B., J. Vaske, and M. Donnelly. 1996. Norms, Standards, and Natural Resources. *Leisure Sciences* 18: 103-23.

Shelby, B., Vaske, Jerry J., Heberlein, T. A. 1989. Comparative analysis of crowding in multiple locations: results from fifteen years of research. *Leisure Sciences*. 11: 269–291.

Stankey, G., D. Cole, R. Lucas, M. Peterson, S. Frissell, and R. Washburne. 1985. The Limits of Acceptable Change (LAC) System for Wilderness Planning. USDA Forest Service General Technical Report INT-176.

Vaske, J. J. 2008. *Survey research and analysis: Applications in parks, recreation, and human dimensions*. Venture Publishing. State College, PA.

Wang, B. and Manning, R. (1999). Computer Simulation Modeling for Recreation Management: A Study on Carriage Road Use in Acadia National Park, Maine, USA. *Environmental Management*, 23(2):193-203.

Whittaker, D. and Shelby, B. 2010. *Kenai River Recreation Use Study: Major findings and implications*. Report to Alaska State Parks.

Whittaker, D., B. Shelby, R. Manning, D. Cole, and G. Haas. 2010. *Capacity Reconsidered: Finding Consensus and Clarifying Differences*. National Association of Recreation Resource Planners. Marienville, Pennsylvania.

**Merced River in Yosemite Valley □ River Use Study
Draft sampling schedule**

		Time and direction	A	B	C	D	E	F
			Clarks	Housekeeping	Footbridge	Swinging	Take-out	El Cap
1	Th	10-18 Dn	15	16	10	11	12	14
2	F	10-18 Dn	16	10	11	12	13	15
3	S	9-17 Dn	9	10	11	12	14	16
4	S	10-18 Dn	10	11	13	14	15	17
5	M	10-18 Dn	11	13	14	15	16	10
3 days off								
6	F	11-19 Up	13	12	11	17	15	14
7	S	10-18 Up	14	12	11	10	16	15
8	S	11-19 Up	17	16	15	14	12	11
9	M	9-17 Up	11	10	9	15	13	12
10	T	10-18 Up	12	11	10	16	14	13
3 days off								
11	S	11-19 Up	17	16	15	14	12	11
12	S	10-18 Dn	16	17	10	11	13	15
13	M	10-18 Up	12	10	17	16	14	13

14	T	10-18 Dn	10	12	13	14	15	17
15	W	10-18 Up	14	13	12	10	16	15

Shaded = 2 hour station
Clear = 1 hour station
Red = start location

Protocols

Groups of four or less get one survey.
Groups of 5 to 8 get two surveys.
Groups of 9 or more get three surveys.

Estimated sample sizes

Assumes about 5 per hour of sampling (including travel times).
15 days x 8 hours per day = 120 hours.
120 hours x 5 per hour = 66 surveys.

Each day: 2 x 2 hour stations + 4 x 1 hour stations = 8 hours.
Raft take-out is always a 2 hour station.
El Cap and Sentinel/Superintendent are always 1 hour stations.
Others rotate systematically.

Clark's:	20 hours x 5 = 100 (~50 camping users)
Housekeeping:	20 hours x 5 = 100 (~50 Housekeeping users)
Superintendent's:	15 hours x 5 = 75
Swinging:	20 hours x 5 = 100
Take-out:	30 hours x 5 = 150
El Cap:	15 hours x 5 = 75

Total n = 600

Likely sub-samples (note: some overlap)

- ~150 long-distance boaters (take-out at Yellow Pine)
- ~100 from lower use beaches near El Cap, Superintendent's, Clark's
- ~100 from camping units or Housekeeping units
- ~300 from high use beaches and times
- ~100 from moderate use times and places