

LAKES BASIN

Special Study

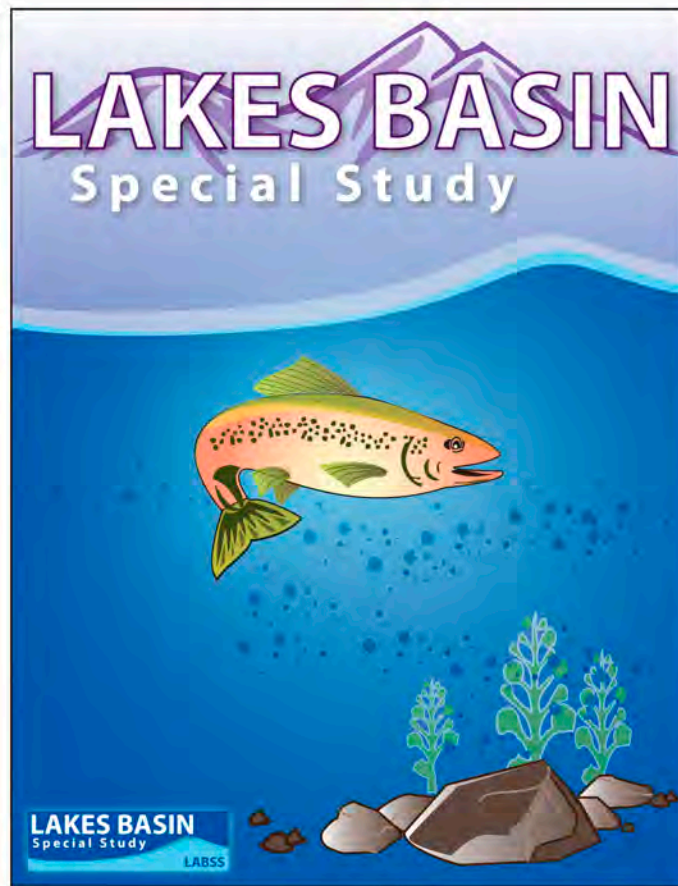
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LABSS Supplemental Materials

1996 Inyo National Forest Visitor Survey



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Lakes Basin Special Study

“1996 Inyo National Forest Visitor Survey” - Inyo National Forest

Summarizes the primary management issues faced in the Mammoth Lakes Basin. Primary issues identified include conflicts between existing uses, transportation problems that present a public safety hazard, and the potential impact of renewal of Special Use Permits in the region upon levels of recreational activities and the quality of visitors' recreational experiences.

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than Lone Pine Lake or Outpost Camp and therefore did not enter the proposed Whitney Zone. These users, along with the one out of every twenty respondents (5%) who used the Mountaineer's (North Fork) Route, would not need a Whitney Zone permit in 1996.

Recognizing that prospective Whitney Zone users may not be able to get a permit immediately on their preferred day, we asked respondents where they would prefer to stay while waiting for a Whitney Zone Permit. Of those indicating they would stay (n=317), over one-third (35%) would prefer to stay in Whitney Portal. Another 45% would stay in Lone Pine, 7% in Mammoth Lakes, 3% in Bishop, 2% in Whitney Portal or Lone Pine, 1% in Lone Pine or Bishop, and 9% listed "other." The high fraction willing to stay in Lone Pine suggests that a Whitney Zone permit system would not negatively affect Lone Pine businesses. Roughly two-fifths (38%) of all non-backpacking respondents (n=177) indicated that they were staying in Lone Pine under the current system. Having to wait for a permit could actually increase economic activity in Lone Pine due to an overnight delay. We were not able to determine what fraction of those currently staying in Lone Pine would prefer to stay in Whitney Portal but were unable to do so due to capacity limitations. The full effect of a permit system could therefore also depend on Whitney Portal capacity. A more detailed economic analysis is necessary to determine likely effects on Lone Pine.

Mammoth Lakes Basin

The primary management issues faced in the Mammoth Lakes Basin relate to conflicts between existing uses, transportation problems that present a public safety hazard, and the potential impact of renewal of Special Use Permits in the region upon levels of recreational activities and the quality of visitors' recreational experiences. The INF also wanted to address potential visitor responses to establishment of either a one-way circulation system for part of the Lakes Basin or establishment of a shuttle bus system to reduce vehicle congestion in the Basin. A similar shuttle bus system was established in 1979 between Minaret Summit (on INF land) and the nearby Devils Postpile National Monument (DPNM, administered by the National Park Service), which are both located in the greater Mammoth Lakes area. That shuttle service has reduced daily vehicle travel in the restricted area by 22% while simultaneously increasing visitation within the Devil's Postpile National Monument by 18%. The nearby example of the DPNM shuttle therefore demonstrates that a shuttle service need not necessarily result in lower levels of recreational use. The DPNM shuttle also serves a number of trailheads to the Ansel Adams Wilderness Area and the John Muir Wilderness Area within the INF, including access to the popular John Muir Trail and the Pacific Crest Trail. Private vehicles are still allowed into the area if

parties have a camping reservation or are travelling outside the restricted daytime periods. Non-backpacking overnight visitors are therefore generally not restricted to the shuttle.

Respondents to the Mammoth Lakes Basin survey currently travel overwhelmingly (96%) by private vehicle, with another one percent relying upon a recreational vehicle. They also tend to stay in the Basin much longer than the typical visitor to DPNM, with only 21% of all respondents visiting the Basin for less than one day. Of those, one-third (33%) stayed for five or more hours, while 44% were there 3-4 hours and 22% for 1-2 hours. Roughly one-fourth (24%) of all respondents stayed for six or more days and another one-fourth (24%) stayed 3-5 days. Nearly one-third (31%) stayed 2-3 days. These longer stays usually involve luggage and recreational equipment, making a shuttle alternative less attractive in comparison with the backpacking and dayhiking profile of visitors to DPNM. A shuttle could still be attractive for both day users and backpackers entering or exiting the Mammoth Lakes Basin. The latter group could organize a more complex set of possible backpacking routes than is currently possible by parking in the Town of Mammoth Lakes and then relying upon the DPNM shuttle and a Mammoth Lakes Basin shuttle for trailhead access. (The DPNM shuttle would have to be supplemented with a shuttle between the Town of Mammoth Lakes and Minaret Summit, where the current DPNM shuttle ends.)

About one-third of respondents (35%) camped (not necessarily within the Lakes Basin), 3% stayed in a resort and 2% stayed in a recreational residence (probably within the Lakes Basin), while another 35% stayed in condominiums, 12% in motels and 12% in private residences (all probably in the nearby town of Mammoth Lakes). Less than two-fifths of the visitors to the Lakes Basin could have actually stayed within the Lakes Basin, therefore, while at least three-fifths had to stay in the Town of Mammoth Lakes or elsewhere outside the Lakes Basin. The economic role of the Lakes Basin as a recreational area for the Town of Mammoth Lakes is therefore significant. The high fraction of visitors staying outside the Lakes Basin is also one of the primary reasons that traffic congestion is high and conflicts between recreational activities and public safety exist. A shuttle for those visitors staying in the town of Mammoth Lakes to and from the Lakes Basin could therefore potentially address at least three-fifths of current traffic. (Because day visitors stay for shorter periods of time, visitors who are not staying within the Lakes Basin probably account for an even higher fraction of trips in the region.)

Only about one-fifth of survey respondents indicated that they stayed for less than one day. This suggests that many respondents (about two-fifths) stay outside the Lakes Basin but visit it for multiple days during their visit to the general area of Mammoth Lakes..

- M + were not campers

We checked the original survey responses and found that 79 respondents answered the question about the number of hours spent in the Lakes Basin while 74 respondents indicated that they spent only one day in the Lakes Basin out of 357 total respondents. We therefore believe that respondents must have been staying outside the Lakes Basin while visiting over multiple days.

Recreational activities within the Lakes Basin are highly diverse. About three-fifths (62%) of all respondents went hiking, while 55% went fishing and 53% practiced photography. About two-fifths (41%) had a picnic, one-fourth (24%) rented a boat, and one-fifth (20%) went mountain biking and one-fifth went biking on a road. Other activities included personal boating (12%), horseback riding (14%), staying at a resort (8%), birding (14%), inline skating (4%), taking a nature walk (5%), staying at a campground (16%), backpacking (12%) and "other" (9%). These figures add up to more than 100% because each survey respondent was asked to indicate all of their activities within the Lakes Basin. Some of these activities (e.g., hiking, photography) are more likely to be accessed with a shuttle than others that may require more equipment or personal gear (e.g., personal boating, biking, staying at a campground).

We would expect visitors' willingness to park their vehicles outside the Lakes Basin and to ride a shuttle into and out of the Lakes Basin to be a function of several factors: length of visit, activities to be pursued during visit, convenience of the shuttle, cost (if any) of the shuttle, and income of the visitors. We therefore constructed a set of survey questions that would allow analysis of responses after controlling for any of these variables. This more detailed cross-tabs analysis is discussed further below. Here we simply report the structure of the survey questions and the descriptive statistics for the entire sample responses without controlling for these variables. Like our WTP questions in the Mount Whitney region, however, the results of our survey are not a substitute for a comprehensive CV study. They do offer a preliminary test of the likelihood of visitors' using a shuttle system, however, under various scenarios.


Higher-income visitors are less likely to be willing to ride a shuttle than lower-income visitors, although they will also generally have a higher WTP value if they are willing to ride a shuttle at all. Roughly one-fourth (24%) of respondents had household incomes greater than \$90,000, while two-thirds (66%) had household incomes of at least \$50,000. Note that this is considerably higher than the Mount Whitney survey respondents, where only 46% had household incomes greater than \$50,000. Mammoth Lakes Basin respondents had less advanced education than Mount Whitney survey

respondents, however with 56% holding at least a college degree in the Lakes Basin (versus 77% for the Mount Whitney region). Only 70% of the Lakes Basin respondents identified themselves as Caucasian, while Hispanics accounted for 9%, Asians for 8% and Native Americans for 6% of the total. This represents a significant increase in the ethnic diversity of visitors since the 1989 INF survey reported by Lee and Brown. The respondent sample is also more diverse than winter visitors appear to be in the Mammoth Lakes and Mammoth Mountain region. These differences in ethnic characteristics warrant further study by the INF. More detailed analysis of the cross-tabs should reveal if there are any relationships between income, education and other visitor characteristics (e.g., age, ethnicity, WTP for shuttle).

We asked three sets of questions about the WTP for a Mammoth Lakes Basin shuttle. Each set reflected a different set of assumptions about the opportunity cost of riding the shuttle: 1) assuming no entrance fee; 2) assuming a \$5 per person entrance fee to the Lakes Basin for non-shuttle riders that would be waived for shuttle riders; 3) assuming a \$10 per person entrance fee to the Lakes Basin for non-shuttle riders that would be waived for shuttle riders. We then asked each survey participant his or her willingness to pay for a shuttle pass (which would be good for the entire day) under four different assumptions about the headway times for the shuttle: 1) shuttles running every hour; 2) shuttles running every half-hour; 3) shuttles running every 20 minutes; 4) shuttles running every 10 minutes. Respondents then had the option of selecting \$0, \$2, \$4, \$6, \$8, \$12 or "not willing to ride shuttle." This closed-option survey design (while including a "not willing to pay" option) is consistent with the protocols established for contingent valuation studies established by the National Oceanic and Atmospheric Administration (NOAA) for all federal agencies and has become a standard framework for CV research. In particular, this survey design minimizes "gaming" behavior by respondents to bid artificially high WTP values. It also gives us a clear indication of what fraction of respondents find the proposed alternative simply unacceptable (even if it is free). We nevertheless believe that the range of options presented in our survey was too complex and may have confused some survey respondents. We infer this through both observation of survey respondents during survey administration and through our analysis of the WTP results. These preliminary results should therefore be viewed with caution.

Assuming no entrance fee in lieu of riding the shuttle, about one-fifth (20%) of respondents were not willing to ride the shuttle under any circumstances. Another one-fourth (24%) were willing to ride the shuttle if it were free (WTP = \$0), while 27% had a

WTP of \$2 and 13% had a WTP of \$4. These figures are normalized mean values for all of the headway alternatives presented in the survey. We developed these normalized means as a rough approximation of the fraction of respondents indicating a particular WTP value because respondents sometimes indicated a *lower* WTP when shuttles were *more frequent*. This counter-intuitive result suggests that there was confusion about the hypothetical situations presented in the survey. The fraction of respondents who were not willing to ride the shuttle also increased to 22% with the hypothetical \$5 entrance fee and then to 26% with the hypothetical \$10 entrance fee. This result suggests that respondents were confused about whether or not the fee would continue to be applied to them even if they purchased a shuttle pass. The fraction of respondents indicating other WTP values was not significantly different than the result presented above. The general shape of the demand function, where the number of respondents decreased as WTP levels increased, was also consistent with economic theory and our original hypothesis. (More respondents were willing to ride the shuttle for free, for example, than were willing to pay \$12.) More detailed analysis of the cross-tabs and original surveys—especially where respondents answered only some of the questions regarding their WTP for a shuttle pass—may suggest an analytic approach that will allow more reliable interpretation of these results. A more targetted and comprehensive CV study is clearly necessary here if the INF wants to establish the potential impact of a fee-based shuttle system on visitors. The specific configuration of the shuttle system and its relationship to the DVNM shuttle may also be important for some users, such as dayhikers and backpackers, who may want to connect trailheads that are accessible by the existing DVNM shuttle.



Other survey questions elicited more reliable and consistent information about visitor perceptions of other management issues in the Mammoth Lakes Basin. We present the results of these questions here through "radar" plots that show the general tendency of responses, rather than the bar charts used above to present similar data for the Mount Whitney Complex. There was general agreement that Mammoth Lakes Basin roads are not congested, but there was less agreement that those same roads are safe. The proposal that Crystal Crag Road should travel in one direction only generated strongly-felt responses that were evenly split between agreement and disagreement. There was general disagreement with the idea that more large parking lots are needed, while more small parking lots fared better. Trailhead parking appears to be adequate. Lakes Basin roadside parking also appears to be adequate for most respondents. Activity-specific responses to these questions may reveal a different "map" that reflects activity-specific parking needs.

There was strong disagreement with the idea of establishing either RV hookups or an RV dump station, yet sales of propane generated a mild but evenly-split response. (Note that only one percent of respondents arrived in recreational vehicles, while propane is used more generally for a wider set of recreational activities.) Free public boat ramps received strong support. (We did not evaluate support for public boat ramps with a charge for use.) Natural resources are not generally perceived to be degraded, but there is support for establishment of formal interpretive programs in the Mammoth Lakes Basin. Self-guided interpretive trails are also strongly desired. Respondents generally do not believe that hiking trails are crowded, and they strongly supported establishment of a multi-use trail system. There was also very strong disagreement, however, with the statements "horses and people belong on the same trail," "bikes and people belong on the same trail," and "bikes and horses belong on the same trail." It is unclear what support for a multi-use trail system means in the context of these latter results. It could be that respondents may really want to establish a multi-use trail *system* with single-use *trails*, but additional research is necessary to determine how respondents interpreted the term "comprehensive multi-use trail system." Moreover, activity-specific responses to these questions probably varied significantly. There may also have been some confusion about the term "multi-use." This is an area that may benefit from some focus group research by activity type.

Finally, the existing number and condition of Americans with Disabilities Act (ADA) campsites appear to be acceptable. There is also some support for barrier-free trails and barrier-free boat ramps, but responses to these questions were more evenly split.

Cross-Tabs Analysis

Many of the descriptive statistics summarized above mask important relationships between two or more variables in the data set. In particular, some sub-groups of the sample group (which share some common characteristics) may have responses that are significantly different than the rest of the group. Understanding these differences is an important element in recreation resource management. There is no "average" visitor; each recreational activity attracts a range of visitors who see the world through the lenses formed by their own preferences and experiences. While there may be "general agreement" with a statement in the survey, some sub-groups of respondents may "strongly disagree." Cross-tabs analysis allows identification of such differences for subsequent consideration.