



Recreation Research Update



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Boating Capacity at Shasta and Trinity Lakes

Dr. Alan Graefe, Penn State University, and Jim Absher have completed a carrying capacity report for the Shasta–Trinity National Forest. Concerns over crowding and user conflicts led to a study of boating capacity at Shasta and Trinity Lakes in northern California. Objectives of the study included: developing a profile of recreation users; measuring recreation use patterns at the lakes; measuring visitor expectations, perceptions of existing conditions, and satisfaction; and examining visitor opinions about lake management.

The study provides a comprehensive model for looking at recreational carrying capacity. In this case, boating use patterns were measured through aerial and ground counts. Visitor data were collected through a series of on–site and mail surveys of key user groups. This multiple measurement and approach facilitated a comprehensive evaluation of the relationships between use levels and the quality of visitor experiences.

During the 2002 boating season 789 on–site visitor interviews were completed. A follow-up mail survey (254 respondents) and information from three key user groups (1,236 houseboat, moorage, and rental customers) added to the database.

Results showed striking differences in use levels and visitor perceptions between Shasta and Trinity Lakes. Shasta Lake receives heavier boating use, accompanied by higher levels of perceived crowding and related impacts. A geographic information system (GIS) was used to analyze lake use patterns and identify favorite and most used locations, along with areas that were avoided or considered unsafe.

Integration of the spatial and attitudinal data revealed the reasons underlying site choices and responses to varying conditions. Avoided locations were classified into social (e.g. crowding) and environmental reasons (e.g. windy conditions or debris). To assist management, an analysis of boater travel routes by access points showed the zone of influence of each developed area.

Perceived crowding was slightly higher on Shasta Lake and reached its peak on both lakes over the July 4th weekend. Crowding levels and related impacts such as user conflicts and displacement were relatively consistent over the rest of the boating season. The majority of boaters encountered use levels that they

expected and accepted. Satisfaction levels were high among all user groups and were not strongly tied to use levels. Lake users reported various ways in which they have modified their boating participation due to crowded conditions such as avoiding holiday weekends, coming earlier or later in the year, or going to different locations on the lake.

The most popular management alternatives among all user groups included aggressive law enforcement, establishing “off-limits” zones for sensitive areas, and restricting personal watercraft (PWC) use to designated areas. Responses to some options varied markedly between user groups. For example, boat ramp users were far more likely than moorage houseboat users to favor development of more public access points. No user group favored limiting the number of boats on the water. All of them, however, also tended to oppose increasing the allocation of private or commercial houseboat permits on either lake.

Overall, study results suggest that boating on Shasta and Trinity Lakes has not reached problematic levels but may be near capacity at this time. The results have helped managers on the Shasta–Trinity National Forest to revise their lake management plan. Proposed actions will emphasize small incremental changes to protect the quality of the visitor experience while allowing more lake access for the public. *For more information about this study contact Alan Graefe at 814-863-8986 or gyu@psu.edu.*

Geocaching: Using Technology for Outdoor Recreation

Geocaching, an outdoor activity that uses handheld Global Positioning Systems to find hidden treasures demarcated on the Internet, emerged in 2000 and has engaged more than 100,000 participants in 200 countries. Agency responses to geocaching range from collaborative management plan development to exclusion. Effective management, however, depends on client knowledge. Given the relatively recent emergence of this activity, little is known about this new user group, their behaviors, and preferences.

Thus, the purpose of this University of Minnesota project, lead by Dr. Ingrid Schneider, was to profile geocachers, the benefits they seek in the activity, as well as attitudes toward low-impact behaviors.

An electronically administered questionnaire to geocachers in Minnesota, fall 2003 (n = 133; 60% response rate), revealed geocachers are primarily middle aged, White, and possess high educational and income status. The majority of geocachers find, rather than hide, caches and prefer to find them in public park areas. More than 80 percent of respondents agreed that geocaching had increased their visits to parks and recreation areas. Seven benefit factors emerged related to geocaching: physical fitness, experience nature, learn, stimulation, relaxation, autonomy, and socialization. These benefits sought differed by group type but not geocaching experience levels. Geocachers indicated moderate to strong attitudes toward environmentally responsible behaviors. Preferences for geocaching include finding caches in well-maintained areas and clear policies about geocaching.

Managers have both opportunities and challenges associated with geocaching. Although a variety of approaches have been taken toward geocaching, among and within organizations, a primary recommendation is to meet this new client's needs for information and clarity regarding geocaching policy. Even if the agency policy is to exclude geocaching, clearly explain why. Programming opportunities exist to enhance technological skills, environmental understanding, social cohesion, and maybe revenues. Programs that introduce the activity allow your area to be seen as an advocate for and partner in this evolving technology society. Also, programs done in partnership with local outdoor stores increase your audience, support group, as well as potential for revenue. As we learn more about what is important to this user group, understanding how an agency performs on the important items could be explored with importance performance analysis.

Challenges with geocaching include the possibility of inter-group conflict. Geocaching almost requires off-trail travel and that could instill conflict with other groups, as could the simple use of the technology. Another challenge is understanding the off-travel behavior in light of the positive environmentally responsible attitudes and messages in geocaching.

Regardless of potential conflict or geocaching regulations, geocaching is in your area. Participants derive both social and personal benefits from this experience. Therefore, to effectively manage the use, seek to understand the geocachers and activity in your area, and 'cache' in on their experience, environmentally responsible attitudes, and this new potential support group. *For more information about this study contact Debbie Chavez at 951-680-1558 or dchavez@fs.fed.us.*

Note: Area Code Change to 951

Unit Publications

Absher, J.D.; Bright, A.D. 2004. **Communication research in outdoor recreation and natural resources management.** In Manfredo, M.J.; Vaske, J.J.; Bruyere, B.L.; Field, D.R. and Brown, P.J. (eds). *Society and Natural Resources: A Summary of Knowledge.* Jefferson, MO: Modern Litho, p. 117-126.

Chavez, D.J.; Courtright, R.; Schneider, I. 2004. **Over the river and through the woods.** *Parks & Recreation*, 39, 4, 68-72.

Chavez, D.; Knap, N. 2004. **Management problems of and strategies for off-highway vehicle management.** Unpublished report. Riverside, CA: Pacific Southwest Research Station, Forest Service, U. S. Department of Agriculture. 226 p.

Morgan, M.; Absher, J.; Whipple, R. 2003. **The benefits of naturalist-led interpretive programs: Implications for user fees.** *Journal of Interpretation Research* 8,1, 41-54.

Tierney, P.T., Chavez, D.J. (technical coordinators). **Proceedings of the 4th Social Aspects and Recreation Research Symposium; 2004 February 4-6; San Francisco, CA.** San Francisco, CA: San Francisco State University. 226 p. Included are:

- Absher, J.D.; Thapa, B.; Graefe, A.R.; Kyle, G.T. 2004. **Information needs and communication theory at Mono Basin Visitor Center.** p. 58-64.
- Chavez, D.J. 2004. **Community impacts from the 2003 fires in southern California.** p. 126-131.
- Chavez, D.J. 2004. **Simulated field trips and roundtable discussions.** p. 181-182.
- Chavez, D.J.; McCollum, D. 2004. **Using BAER reports to investigate recreation impacts of fire events.** p. 120-125.
- Cvetkovich, G.T.; Winter, P.L. 2004. **Seeing eye-to-eye on natural resource management: Trust, value similarity, and action consistency/justification.** p. 46-50.
- Thapa, B.; Holland, S.; Absher, J. 2004. **The relationship between wildfires and tourist behaviors in Florida: An exploratory study.** p. 154-161.
- Tierney, P.; Absher, J. 2004. **Recreation on federal lands in central and northern California: A comparison of forest-proximate and distant residents.** p. 212-219.
- Tierney, P.; Barkin, D.; Burnett, K.; Chavez, D.J.; Miranda, J. 2004. **Leisure travel, vacations, constraints and visitation to natural area attractions: A comparison of residents of Barcelona, Glasgow, Los Angeles and Morelia, Mexico.** p. 162-168.

The proceedings are available as PDFs at our website.

Vogt, C.; Nelson, C. 2004. **Recreation and fire in the wildland-urban interface: A study of year-round and seasonal homeowners in residential areas nearby three National Forests—San Bernardino National Forest, California; Grand Mesa, Uncompahgre and Gunnison, Colorado; and Apalachicola National Forest, Florida.** Riverside, CA: Pacific Southwest Research Station, Forest Service, U. S. Department of Agriculture. 15 p