

Visitor Benefits, Crowding and Values: Cumulative Visitor Report 2003-2004 Lake Shelbyville & Carlyle Lake

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July 2006

STAFF PAPER SERIES NUMBER 188

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Executive Summary

The University of Minnesota (UofMN) conducted a multiple year project to understand visitor and community benefits, values, and conflict at US Army Corps of Engineers' (CE) recreation areas. This report focuses on visitor recreation experiences and benefit attainment at two CE sites, Carlyle Lake and Lake Shelbyville, Illinois, throughout a two-year period (2003-2004).

Methods

Both onsite and marina visitors were of interest. Visitors were systematically selected 2003-2004 through an onsite contact questionnaire, and then invited to participate in a mail survey at the time of contact. Marina members were contacted through available marinas member lists and sent a mail questionnaire. The onsite questionnaire focused on: (1) experience use history, (2) place attachment, and (3) demographics. In the mail questionnaire, sections focused on: (1) desired and attained benefits, (2) primary areas for benefit achievement, (3) crowding expectations and preferences, including satisfaction and conflict, and (4) value of CE area.

At each lake, the majority of visitors contacted completed onsite questionnaires. The mail back questionnaire visitor response rate ranged from 45.7%-51.7% at Carlyle Lake, and 47.3%-60.9% at Lake Shelbyville. The response rate for marina members was 46.4%.

Results

Respondents' demographics and use history

The majority of respondents was male, middle-aged, white, and possessed average educational and income status. Marina member survey respondents were more educated, affluent, and older than the onsite survey respondents, as well as the average Illinois resident. Respondents were frequent and long-term visitors to the lake, and the majority had previously visited Carlyle Lake or Lake Shelbyville. Most frequently, visitors were either fishing or camping during their visit.

Benefits: importance and attainment

When factor analyzed, three benefit factors emerged at both lakes: autonomy, recreating with similar people, and learning. A fourth factor, achievement, emerged summer 2004 at Carlyle Lake and both summers at Lake Shelbyville. One factor, recreate in a natural environment, only emerged at Lake Shelbyville. The importance of benefit factors differed by participants' main activity. Most frequently, campers identified achievement as less important than anglers while anglers identified recreating with similar people as less important than campers.

All benefits were at least partially attained, and significant but weak to moderate positive correlations existed between the majority of benefits' importance and attainment. At both lakes, most of the benefit attainment occurred in the areas near the dam and around the towns.

Crowding

Crowding perceptions were near or about as expected for all areas. When exceeded, crowding expectations were most exceeded at the campsites yet this was still about as they expected. Similarly, crowding perceptions were near or about as preferred for all areas. For those who had a preference, they were most exceeded at campsites and boat ramps, yet this again was still about as preferred.

Place attachment

Place attachment, measured by two dimensions of identity and dependence, was moderate among respondents. Weak to moderate correlations emerged between place attachment dimensions and experience use history measures. Overall, the stronger but still weak relationships occurred between experience use history items and place identity.

Value

Summer respondents agreed the lake was important economically for the area and that its recreation use was also important. Less agreement was found, however, for the economic value of the navigation project.

Implications

In sum, the CE managers can be assured that benefits are important to visitors, that the current visitors are attaining benefits, and overall have a positive experience at these Illinois sites. Moderate place attachment exists among the visitors. Opportunities to enhance and expand upon benefit attainment exist. Similarly, opportunities to enhance place attachment are possible.

Benefits: Visitors identified a variety of benefits important to their experience and expressed attainment of these important benefits. The benefits based management approach, therefore, appears both appropriate and timely to implement.

Across the watershed, several recreation benefits were identified as consistently important: recreate in a natural environment, achievement, autonomy, recreate with similar people, and learning. The benefit factors reflect a constituent base with diverse desired benefits from the area. Subsequently, planning and management can retain their focus on program and experience variety to meet these diverse needs. Beyond the items that were factor analyzed, managers may also want to monitor benefits they also view as critical, such as health and safety.

Still, as CE projects seek to differentiate themselves from other recreation opportunities as well as among themselves, understanding what is both most important and most unique for their visitors will be critical. Therefore, further market differentiation may be in order to capitalize on the unique opportunities each Kaskaskia project affords. Also, understanding where and how visitors (and nonvisitors) get their recreation information can assist in increasing the number of visitors and benefit opportunities provided. Working with the local and regional tourism bureaus will enhance these efforts.

All benefits were very close to total attainment, which also likely contributes to the high satisfaction rating with the visit. The benefits at both lakes were most frequently attained in the areas near the dam and around the towns of Carlyle or Shelbyville. In addition, benefit attainment was also reported in the lake section near campgrounds. Both challenges and opportunity exist with such concentrated benefit attainment. The challenge associated with significantly high benefit attainment is that as of 2004, these benefits are primarily attained in just three of the several areas available. Therefore, future possibilities for crowding, disproportionate resource impacts and possible safety concerns exist. Opportunities associated with concentrated benefit attainment include marketing and select areas for resource conservation. Directed marketing and information can guide visitors to the type of experience

they want as well as possibly attract new markets. Even within the current visitor base there are opportunities to expand current visitors use as delineated by the uneven distribution of visitors within the projects and by activities.

Monitoring the benefits and their attainment is the next logical step in this management process. One possible monitoring method is the addition of benefit factors to the existing CE Comment card. Thus, just as visitors rate facilities, they can rate the ability to which they were able to attain important benefits. While the best indicators will be determined by onsite teams, a number of possibilities exist. Two handbooks are available for guidance: (1) *Identifying and Monitoring Indicators of Visitor Experience and Resource Quality: A Handbook for Recreation Resource Managers* (www.cnr.umn.edu/CPSP/publications/Indicators_Standards_Handbook.pdf) and (2) *A Manager's Guide to: Gathering and Using Visitor and Community Benefits Data to Manage Outdoor Recreation Areas*.

Crowding perceptions: Consistently, results indicated crowding was not an issue for the current visitor base. The majority of respondents reported perceived crowding to be near or about as expected and preferred for all areas.

Two areas warrant increased attention due to higher perceived crowding than preferred or expected: campsites and boat launches. Still, as these were about as expected, immediate concern should not arise. However, managers may want to pay particular attention to visitor perceptions at campsites and boat launches as well as work toward setting expectations for the type, level and timing of users. Further, it may be that those visitors who were too crowded have been displaced.

Place attachment and value: Moderate place attachment reported by CE lake visitors. The differences in identity and dependence by activity type are of interest. Positive place attachment generally leads to more desirable attributes among visitors-such as support for management actions or pro-environmental behavior. Subsequently, increasing place identity or dependence is generally desirable. Further, it's likely that those with greater place attachment would be more likely to volunteer. Therefore, programs and/or interpretive opportunities that enhance visitor's sense of place for the watershed are suggested as is a critical evaluation of existing materials with regards to sense of place.

Beyond the place attachment associated with the CE projects, Carlyle Lake and Lake Shelbyville survey respondents agreed that the lake, as well as recreational use of the lake, is economically important to the area. However, respondents agreed less that commercial navigation on the river is important to the economy of the area. Thus, an educational and learning opportunity exists about the importance of the commercial navigation to the area, region and nation.

Introduction

Background

The Benefits Approach to Leisure (BAL) is an emerging framework that explores benefits realized by both individuals and society through leisure experiences. This approach distinguishes three types of benefits: an improved condition, the prevention of a worse condition, and the realization of a specific satisfying psychological experience (Driver and Bruns 1999). Benefit categories attributed to leisure include: physiological, psychological, psycho-physiological, sociological, environmental, and economic (Philipp 1997).

A related framework is Benefits-Based Management (BBM), which is designed to incorporate outdoor recreation area values into a management framework (Anderson et al. 2000; Driver et al. 1996). Improving benefit opportunity production into recreation land management is of interest concern to both land managing agencies and academics. Benefits accruing to visitors and communities, and the value of these benefits as a result of their proximity to CE projects, can be significant from CE sites as most CE projects are located within 50 miles of an urban center. Specific benefit attainment at lake-based CE recreation projects, though critically important, remains unknown, as does benefit attainment to CE recreation project communities. Visitor benefits were the primary focus of this project, accompanied by information on crowding, place attachment and values.

Crowding

One factor potentially influencing benefit attainment is crowding. According to Shelby et al. (1989), crowding in outdoor recreation has been defined as a negative and subjective evaluation of a use level. Therefore, crowding is a value judgment about a certain use level, and is dependent on a number of factors and circumstances (Manning 1999). These dependent factors have been broadly grouped into three categories: visitor characteristics, other visitors' characteristics, and situational variables. Both expectations and preferences for crowding were explored in this project.

Place

Another factor potentially influencing benefit attainment is place attachment. "Place" is defined by Relph (1976, p. 29) as more than a simple description of an area's location but multifaceted—a combination of "setting, landscape, ritual, other people, personal experiences, care and concern for home, and in the context of other places." In a recreational context, place attachment consists of and is described by two primary dimensions, place dependence and place identity. Place dependence is defined as the potential for a place to satisfy the needs of an individual and how that place compares in need satisfaction compared to another place (Stokols and Shumaker 1981). In contrast, place identity is defined by Proshansky (1978, p.147) as "a subculture of the self-identity of the person consisting of, broadly conceived, cognitions about the physical world in which the individual lives."

Place dimensions (identity and dependence) are related to other variables important in natural resource management. Kyle et al. (2003) found that as place identity increased, so did respondents' support for fees related to environmental education, environmental protection, and facility and service development. Place identity also significantly relates to environmentally

responsible behavior, which suggests that by encouraging one's place identity, environmentally responsible behavior will develop (Vaske and Kobrin 2001). Williams and Stewart (1998) suggest managers "pay close attention to places that have special but different meanings to different groups" (p. 22) and use that knowledge to influence their management decisions. For example, Warzecha and Lime (2001) found place attachment differences between users of two rivers in one management area and suggested that the agency consider different management strategies for them.

Value

Resource valuation may be used to prioritize resource management options. The systematic incorporation of public values in natural resource management, planning, and policy formulation is critical (Hetherington et al. 1994), as value comprehension helps managers establish appropriate goals for ecosystem management, determine how people will react to management practices, and better understand environmental conflicts (Bengston 1994). According to Andrews and Waits (1980), values are a statement of "a relationship, an estimation of worth of some object to an individual or in particular situation" (p.71).

Purpose

A multiple-year project to understand visitor and community benefits, values, and conflict at CE recreation areas was undertaken by the University of Minnesota (UofMN) and CE. This first effort focused on the Kaskaskia watershed in Illinois (Kaskaskia River, Carlyle Lake, Lake Shelbyville, and the Navigation project) and included onsite visitor questionnaires, marina member questionnaires, community member interviews, and community surveys.

Specifically, the research sought to:

Objective 1: Evaluate CE recreation experiences and benefit attainment through a combination of qualitative and quantitative approaches with particular attention to carrying capacity, place attachment, and values;

Objective 2: Develop or refine social indicators and standards of visitor, community, and resource quality;

Objective 3: Develop or refine management strategies, tactics, and actions to create or sustain recreation benefit opportunities; and,

Objective 4: Disseminate information and applications to planners, managers, and other interested audiences.

This report focuses on summarizing key visitor experiences at Carlyle Lake and Lake Shelbyville, Illinois. More detailed information on each study is available elsewhere (www.cnr.umn.edu/FR/publications/staffpapers/Staffpaper177.pdf and www.cnr.umn.edu/FR/publications/staffpapers/Staffpaper178.PDF)

Methods

The methods for the on-site and mail questionnaires of Carlyle Lake and Lake Shelbyville visitors are presented in the following sections: study sites, sample and sampling, questionnaire, and analysis.

Study Sites

Carlyle Lake, located in southwestern Illinois, stretches 83 miles through Clinton, Bond, and Fayette counties (USACE 2004). The 26,000 acres of surface area create the largest human-made reservoir in Illinois and includes three marinas, five campgrounds, four beaches, two state parks, and a state fish and wildlife area. Carlyle Lake provides a variety of recreation opportunities throughout the four seasons and hosts more than 2.8 million visitors annually.

Lake Shelbyville, located in central Illinois, stretches 26 miles through Shelby and Moultrie counties (USACE 2004). This lake, the third largest inland lake in Illinois, includes three marinas, six campgrounds, three day-use areas, six beaches, two state parks, and a state fish and wildlife management area. Lake Shelbyville provides a variety of recreation opportunities throughout the four seasons and hosts more than 2.7 million visitors annually.

Sample and Sampling

Lake visitors with a range of interests in outdoor recreational activities were the target sample. Visitors were systematically selected 2003-2004 through an onsite contact at four areas: campgrounds, spillway areas, day use/sightseer areas, and boat ramps. Due to resource constraints in 2004, day-use areas were not sampled. Onsite questionnaires were administered across 16 days in 2003 and 14 days in 2004 with varied times. Visitors were invited to participate in a mail survey at the time of contact. To obtain potential respondents for the marina member mail survey, watershed marinas were invited to share their member lists.

Questionnaire

Onsite: An onsite questionnaire was designed, approved by Office of Management and Business (OMB) and by the UofMN Institutional Review Board (IRB), and pre-tested 2003. Questionnaire sections focused on (1) experience use history with the CE area, (2) place attachment to the CE area, and (3) demographics.

~Experience use history was measured by number of total visits, number of visits in the last year, as well as year of first visit.

~Place attachment followed past research (Williams and Vaske 2003) and used six items to measure each of the place dependence and place identity dimensions on a five-point Likert scale. Respondents indicated their agreement on a scale of 1 to 5, with 5=strongly agree. An example of an item measuring place dependence is “Doing what I do at this lake is more important to me than doing it in any other place.” An example of an item measuring place identity is “This lake means a lot to me.”

~Demographic questions included education, ethnicity, race, language use, income, gender, age, and contact information for the mail survey.

Mail: An eight-page questionnaire was designed, approved by OMB and UofMN IRB, and pre-tested in 2003. Potential respondents received this eight-page questionnaire and introductory letter in the mail; the letter explained the purpose of the questionnaire and ensured anonymity and confidentiality. Questionnaire sections focused on several areas. Of primary interest to this report are: (1) desired and attained benefits, (2) primary areas for benefit achievement, (3) crowding expectations and preferences, including satisfaction and conflict, and (4) value of CE area.

~Desired benefits was measured on a 5-point scale ranging from very unimportant to very important for 26 benefit items. Benefits that were rated important or very important are used in the importance analysis. Attained benefits was measured on a 4-point scale ranging from did not attain, to totally attained. Benefits that were attained at any level were considered attained. To obtain the primary areas for benefit achievement, respondents marked where they attained the benefits on a map of the lake.

~Expected crowding was measured on a 5-point scale for several areas where 1=far less than expected, 3=as expected and 5=far more than expected. Similarly, preferred crowding was measured on a 5-point scale where 1=far less than preferred, 3=as preferred and 5=far more than preferred. Both items included a “had no expectation” or “had no preference” option as well as a “did not visit” option. Expected and preferred crowding were measured at campsites, boat launches, picnic areas, beaches, and trails.

~Value of the CE areas was measured on a 5-point scale for a variety of items, with 5=strongly agree. An example item measuring value is “Recreational use of this lake is important to the economy of the local area.”

Due to low numbers of onsite respondents during the shoulder seasons, the mail questionnaire was only administered to the summer respondents.

Analysis

Data were entered, cleaned, and checked for singularity and multicollinearity in SPSS version 11.5. In addition, extreme outliers were Winsorized to bring highly skewed variables into usable ranges. Descriptive analysis provided means, standard deviations, and frequencies to describe the sample and provide information on variables of interest. Cronbach alpha’s assessed scale reliability for place identity and place dependence dimensions.

To identify benefit factors, benefit importance items were factor analyzed using principal components factor analysis with standard criteria of eigen values greater than one, factor loadings 0.40 or greater, and meaningful structure. In 2003 Carlyle Lake data, 14 items failed to load or cross-loaded and were eliminated from further analysis. Subsequently, caution with interpreting the benefit factors for 2003 Carlyle is encouraged. 2004 Carlyle Lake factor analysis was remarkably similar to Shelbyville results. Shelbyville 2003 was similar to 2004, therefore, factors in 2004 were replicated.

Correlations identified the relationship between benefit importance and attainment. ANOVA's assessed differences in benefit importance by main activity. Benefit attainment was examined for all visitors, as well as only for those that rated the benefit as important. Only benefits that were both important and attained were mapped, however.

Results

Select results are presented in this report regarding the target questions. Please refer to the university reports for a complete results and corresponding tables.

(www.cnr.umn.edu/FR/publications/staffpapers/Staffpaper177.pdf and www.cnr.umn.edu/FR/publications/staffpapers/Staffpaper178.PDF)

Carlyle Lake

Response Rate

Onsite: The majority of visitors contacted agreed to complete the questionnaire. Response was lowest in fall 2003. Of the 1,121 visitors contacted in the summer of 2003, a total of 930 agreed to participate. Of those, 3 were unusable and therefore a response rate of 82.9% resulted (n=927; Table A2). In fall 2003 and spring 2004, the response rates were 55.6% (n=99) and 91.3% (n=73), respectively. Of the 1160 visitors contacted, 923 agreed to complete the onsite questionnaire during summer 2004. Five of those were unusable, for a response rate of 79.5% (n=918). The response rate in fall 2004 was 99.4% (n=162). Those who did not participate typically indicated they were not interested, did not have enough time, or did not read/speak English. Two factors may have contributed to the lower response rate in fall 2003: a simultaneous creel survey by Illinois Department of Natural Resources and the fact that agency personnel, rather than neutral University personnel, administered the questionnaire.

Mail: Five hundred thirty-two respondents in summer 2003 and 472 in summer 2004 included their name to receive the mail questionnaire. A modified Dillman (2000) technique resulted in a 45.7% response rate (n=232) and 51.7 % response rate (n=230) in 2003 and 2004 respectively (Table A3). A nonresponse bias check was employed via comparison between onsite data points and it indicated respondents had stronger place attachment and longer visitation histories than nonrespondents.

Respondents

General similarities emerged among the visitor demographics across the seasons. The majority of respondents were male, white, non-Hispanic, and reported an income (before taxes) less than \$75,000 (Table A4). Respondents ranged in age from 18 to 93 years, with average age in the mid to late 40s. Most frequently, respondents had attained either a high school/GED education level or had attended some college.

Carlyle Lake Visitation

Respondents were frequent and long-term visitors to the lake (Table A5). The majority of respondents had previously visited Carlyle Lake (88.6%-98.6%). Of those who could remember and identify their total visits, the average *total* visits were 29.73 summer 2003, 40.76 summer

2004, and 32.67 fall 2004. Most frequently, respondents had visited the lake between six to ten total times (19.1%) during summer 2003, while in summer and fall 2004, respondents had most frequently visited the lake between 26-50 total times (15.9%; 21.7%). Data are not reported on the total times visited for fall 2003 and spring 2004 due to low response rate. In the *twelve months prior* to onsite contact, respondents generally indicated an average of 11-12 trips to Carlyle, although the average was lower for fall 2003 ($M=5.37$). Many of respondents could not remember their visits in the 12 months prior to the onsite contact or the total number of visits, often due to high visitation. Respondents varied in their year of first visitation to Carlyle Lake.

Main Activity

Most frequently, visitors were either fishing or camping during their visit to Carlyle Lake (Tables A6 and A7). Differences emerged in the third most frequent main recreation activity for the summer 2003 and summer 2004, swimming and motor boating, respectively. This difference may be explained by the difference in sampling between the two years (not at day-use areas in 2004).

Important and Attained Benefits

Of the 26 benefit items rated, four were identified as most important: “to do something with my family”, “to enjoy the scenery of the lake”, “to get away from the usual demands of life”, and “to relax physically” (Table A8). All 26 benefits were at least somewhat attained both years. Significant but weak to moderate positive correlations existed between the majority of benefits’ importance and attainment.

In both years, three benefit factors emerged: learning, recreation in a natural environment alone, and recreation with similar people (Tables A9 and A10; Figure 1). An additional factor, achievement, emerged summer 2004. The factors explained 62.3% (2003) and 71.7% (2004) of the variance, and each had a Cronbach’s alpha 0.70 or above. However, within Carlyle Lake 2003 data, 14 of the 26 items failed to load and therefore, results should be interpreted cautiously. In particular, although learning explained most of the variance, only about one-third of respondents attained the experience. In 2004, achievement explained most of the variance.

No differences in benefit factor importance emerged among participants engaged in three primary activities (camping, fishing, and swimming) in 2003. In contrast, differences did emerge among the 2004 three main recreational activities (fishing, camping, and motor boating) in two benefit factors:

- (1) campers and motor boaters rated achievement as less important than anglers, and
- (2) anglers indicated recreation with similar people as less important than campers and motor boaters.

Benefits were most frequently attained near the east and west access in Carlyle and between Coles Creek and Boulder, followed somewhat distantly by areas near Hazlet State Park and South Shore State Park (Tables A11 and A12; Appendix B; Figures 2 and 3). Respondents summer 2003 indicated that learning was most frequently attained near the east and west access in Carlyle, but followed consistently areas around South Shore State Park, while in 2004 learning was primarily attained near the east and west access in Carlyle and around Hazlet State Park. Experiencing nature alone and recreating with similar people were most frequently attained near

the east and west access in Carlyle, between Coles Creek and Boulder and around Hazlet State park. Achievement was primarily attained near the east and west access in Carlyle and between Coles Creek and Boulder in 2004.

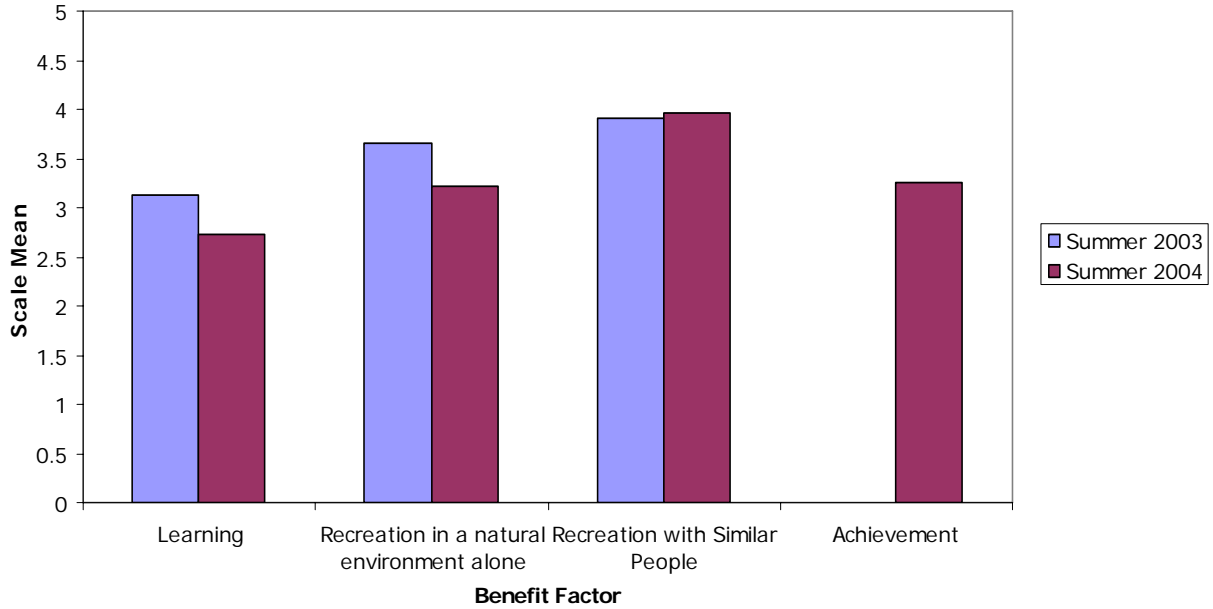


Figure 1. Importance of benefit factors among Carlyle Lake visitor mail survey respondents. Note: 5-point scale where 1=very unimportant to 5=very important.

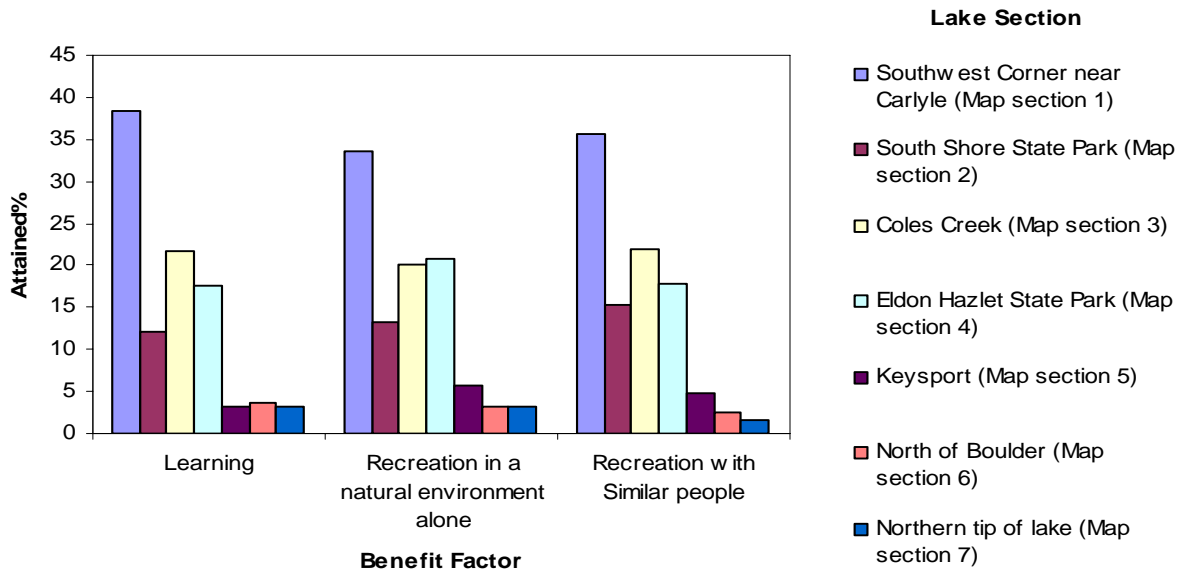


Figure 2. Percent of respondents attaining benefit factor in each lake section, Carlyle, summer 2003 (see map Appendix B).

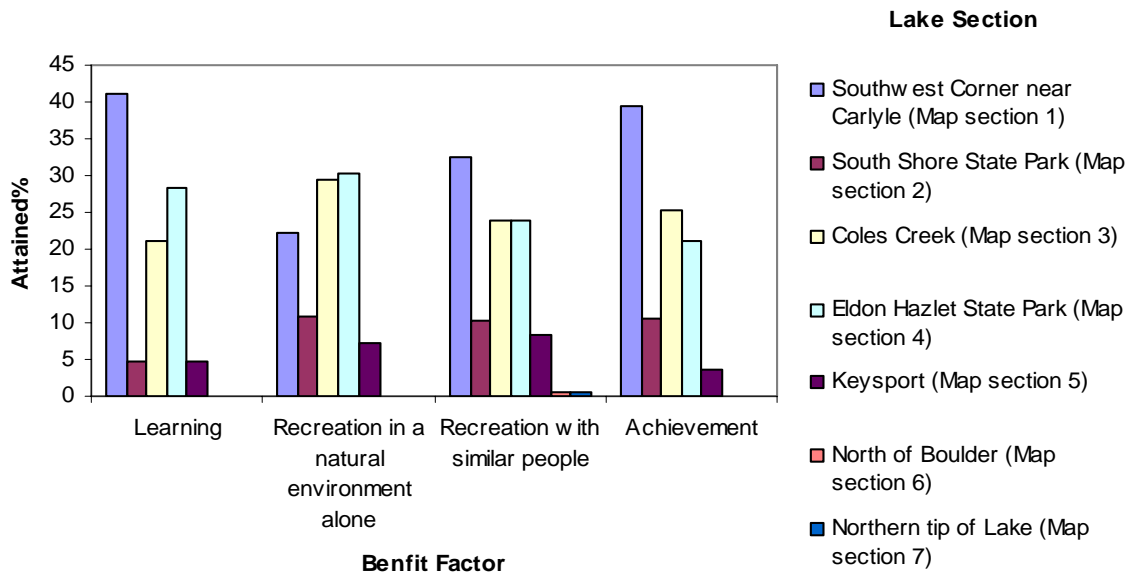


Figure 3. Percent of respondents attaining benefit factor in each lake section, Carlyle, summer 2004 (see map Appendix B).

Crowding Perceptions

Crowding perceptions were near or about as expected for all areas (Table A13; Figure 4). Survey respondents reported crowding expectations were most exceeded at the campsites yet this was still about as they expected. Crowding was less than expected on trails.

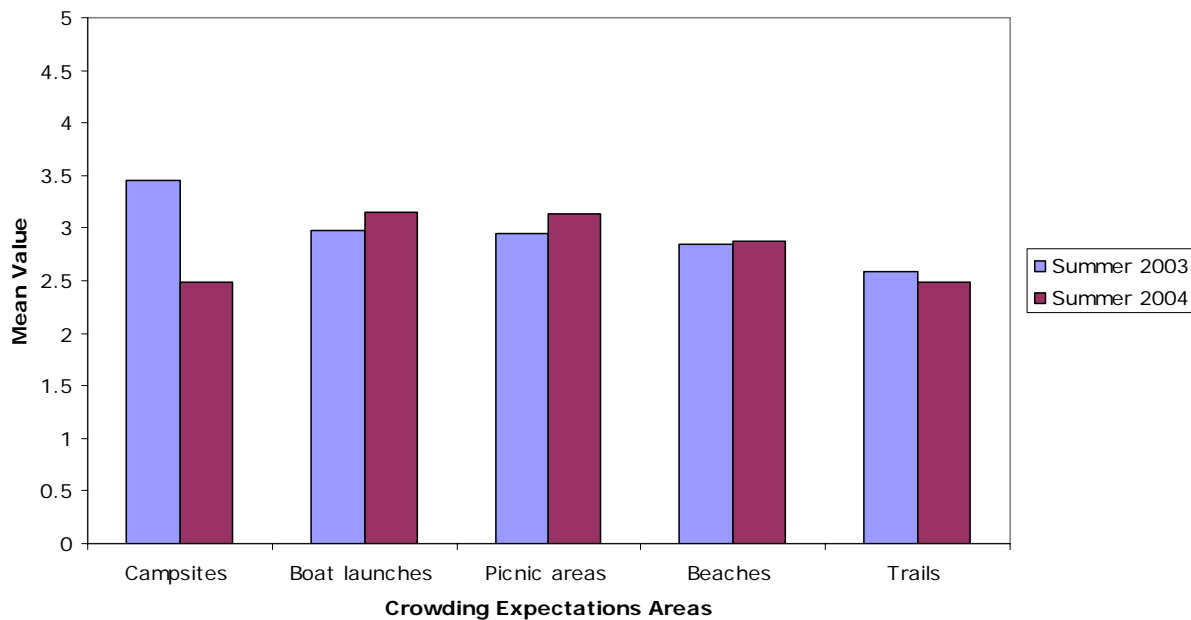


Figure 4. Crowding expectations among Carlyle Lake visitor mail survey respondents. Note: 5-point scale where 1=far less than expected, 3=as expected, and 5=far more than expected.

Similar to crowding expectations, for those who had a preference for the number of people at the site perceived crowding levels were near or about as preferred for all areas (Table A13; Figure 5). Crowding preferences were most exceeded at campsites, although this was still about as preferred. The number of people at Carlyle Lake during survey respondent visits neither added to nor detracted from just more than 50% of respondents' visit (Table A14). However, the number of people actually added a lot to the enjoyment of more than 10% of respondents' experiences and detracted a lot from less than 5% of respondents experiences.

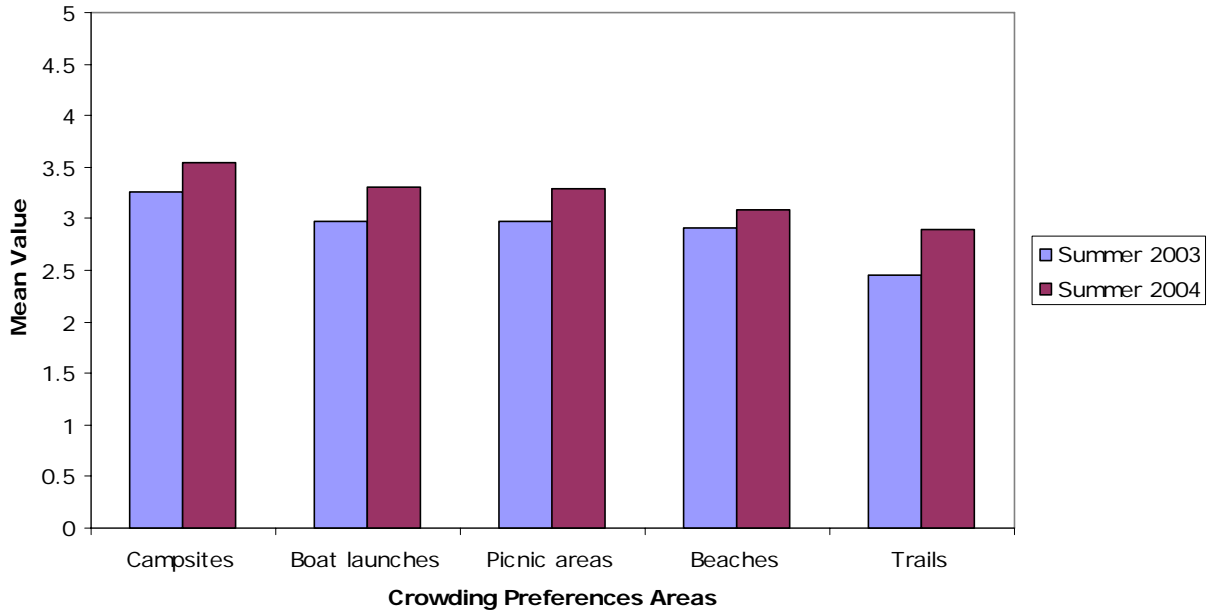


Figure 5. Crowding preferences among Carlyle Lake visitor mail survey respondents. Note: 5-point scale where 1=far less than preferred, 3=as preferred, and 5=far more than preferred.

Place Attachment

Place attachment, as measured by two dimensions of identity and dependence, was moderate among Carlyle Lake respondents. The average place dependence scale score ranged from 3.13 to 3.57 on a scale from 1 to 5 where 5 indicates strong place dependence (Table A15; Figure 6). Respondents most strongly agreed with the statements “Doing what I do at this lake is more important to me than doing it any other place” and “This lake is the best place for what I like to do.” Respondents in all seasons most strongly disagreed with the statement “The things I do at this lake I would enjoy doing just as much a similar site.” Similarly, the average place identity scale score was moderate ranging from 3.42 to 4.09 on a scale from 1 to 5 with 5 indicating strong place identity (Table A16; Figure 6). Respondents most strongly agreed with “This lake means a lot to me” and “This lake is very special to me.”

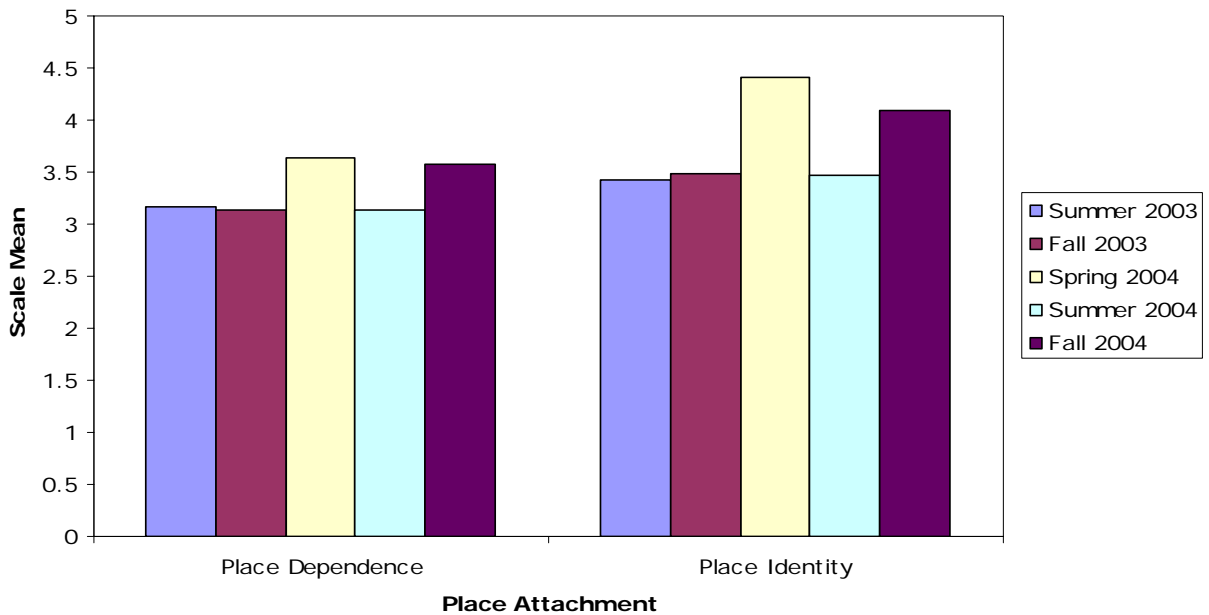


Figure 6. Place attachment among Carlyle Lake visitor onsite survey respondents. Note: 5-point scale where 1=strongly disagree to 5=strongly agree.

Place attachment (place dependence and place identity) variation by activity was mixed the two years of data collection. In 2004, place attachment did not differ by the three main recreational activities (fishing, camping or motor boating). In contrast, place dependence and identity differed by the three main recreational activity summer 2003 (camping, fishing, and swimming). Specifically, campers indicated significantly greater place dependence and identity than anglers and swimmers. Anglers’ place identity was greater than swimmers.

Weak to moderate correlations emerged between place attachment and experience use history measures. The majority of them, however, were not statistically significant. Overall, the weak to moderate relationships between experience use history items and the two place attachment dimensions occurred primarily with place identity (Tables A17-21).

Value

Summer respondents agreed the lake was important economically for the area and that its recreation use was also important (Table A22; Figure 7). Respondents most strongly agreed: “This lake is important to the economy of its local area”, “Recreational use of this lake is important to the economy of the local area.” Respondents agreed less with the statements: “Commercial navigation (barges) on the Kaskaskia River is important to the economy of the region.”

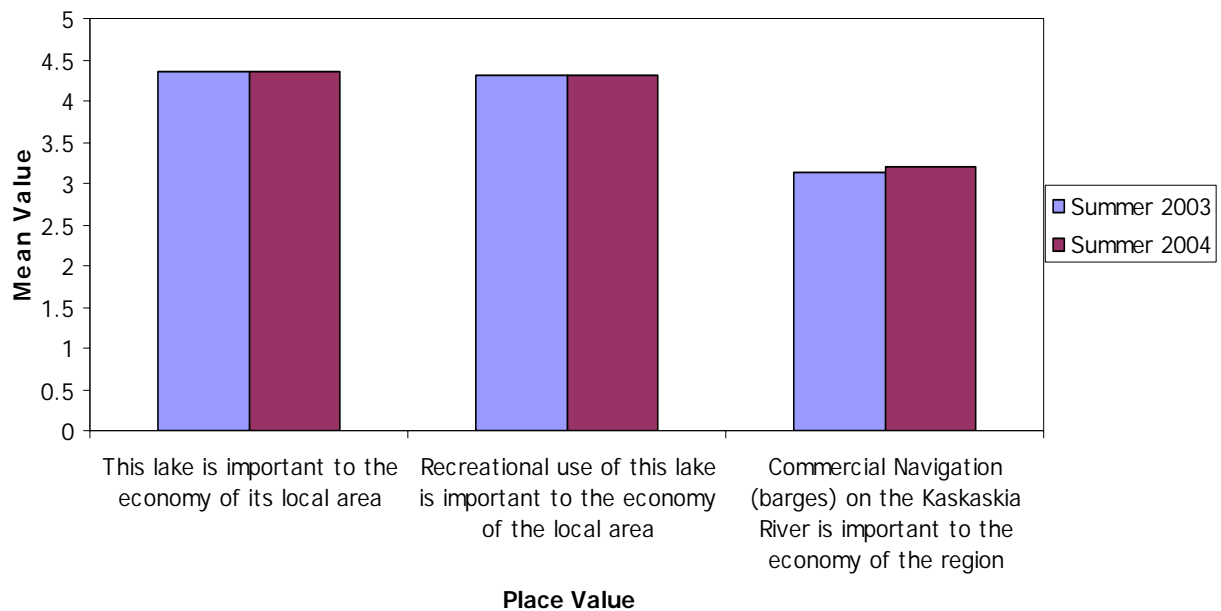


Figure 7. Place value among Carlyle Lake visitor mail survey respondents. Note: 5-point scale where 1=strongly disagree to 5=strongly agree.

Lake Shelbyville

Response Rate

Onsite: The majority of visitors contacted onsite agreed to complete the questionnaire. Response was lowest in spring (Table A23). Of the 895 visitors contacted in the summer of 2003, a total of 780 agreed to participate. Of those, six were unusable and, therefore, a response rate of 87.1% resulted (n=774). In fall 2003 and spring 2004, the response rates were 84.1% (n=116) and 55.1% (97), respectively. Of the 1,030 visitors contacted, 886 agreed to complete the onsite questionnaire during the summer 2004. Five of those were unusable, for a response rate of 86.0% (881). The response rate in fall 2004 was 60.0% (n=105). Those who did not participate typically indicated they were not interested, did not have enough time, or did not read/speak English. Spring and fall response rates may have been influenced by a spring Illinois Department of Natural Resources creel survey and the fact that agency personnel administered the questionnaire rather than neutral University individuals.

Mail. Three hundred seventy-nine respondents in summer 2003 and 481 in summer 2004 included their name to receive the mail questionnaire. A modified Dillman (2000) technique resulted in 47.3% response rate (n=176) and 60.9% response rate (n=284) in 2003 and 2004, respectively (Table A24). A nonresponse bias check was employed by comparing onsite data variables. The check indicated respondents had stronger place attachment and longer visitation histories than nonrespondents.

Beyond onsite visitors, two watershed marinas agreed to share their member lists: Findlay and Lithia Springs (n=510). The final response rate for the marina members was 46.4% (n=227).

Respondents

The majority of respondents were male, middle-aged, white, non-Hispanic, and reported an income (before taxes) less than \$100,000 (Table A25). Respondents ranged in age from 18 to 88 years, while the average age ranged from 43.6 to 58.9. Most frequently, respondents had attained either a high school/GED education level, had attended some college, or attained a college degree. General similarities emerged among the visitor demographics across the seasons, although fall 2004 visitors were older and had higher levels of education than the other visitors. Marina member survey respondents were more educated, affluent, and older than the onsite survey respondents, as well as the average Illinois resident (US Census 2000).

Lake Shelbyville Visitation

Respondents were frequent and long-term visitors to Lake Shelbyville (Table A26). The majority of respondents had previously visited Lake Shelbyville (67.9%-91.8%). Of those who could remember and identify their total visits, the average *total* visits were 30.6 summer 2003, 20.5 fall 2003, 32.2 spring 2004, and 39.4 summer 2004. Most frequently, respondents had visited the lake between 6-10 total times (15.1% summer 2003; 30.8% fall 2003; 14.5% spring 2004; and 13.2% summer 2004). In addition, 17.6% (n=91) visited the lake more than 100 total times summer 2004. Data are not reported on the total times visited for fall 2004 due to low response rate. In the *twelve months prior* to onsite contact, respondents generally indicated an average of 9-13 trips to Lake Shelbyville, although the average was lower for fall 2004 ($\bar{M}=6.50$). Many of the respondents could not remember their visits in the 12 months prior to the onsite contact or the total number of visits, often due to high visitation.

Main Activity

Most frequently, visitors were fishing, camping or motor boating during their visit to Shelbyville Lake (Tables A27 and A28). In summer 2003, swimming also emerged as a main activity, yet not in 2004. This difference may be explained by the difference in sampling between the two summers (not at day use areas in 2004).

Important and Attained Benefits

Of the 26 benefit items rated, mail respondents rated four as important or very important: “to enjoy the scenery of the lake”, “to do something with my family”, “to get away from the usual demands of life”, and “to relax physically” (Table A29). Summer 2004 and marina member respondents also included: “to be with people who enjoy same things I do”, and “to be with members of my group.” In addition, marina members rated “to be close to nature” and “to experience nature” as important as well. All 26 benefits were at least partially attained, and significant but weak to moderate positive correlations existed between the majority of benefits’ importance and attainment.

When factor analyzed, five benefit factors emerged: recreation in a natural environment, autonomy, recreation with similar people, achievement, and learning (Tables A30 and A31; Figure 8). The factors explained 62.4% of the variance in 2003 and 65.1% of the variance for the marina members. All five factors had Cronbach alpha reliability coefficients of 0.70 or greater.

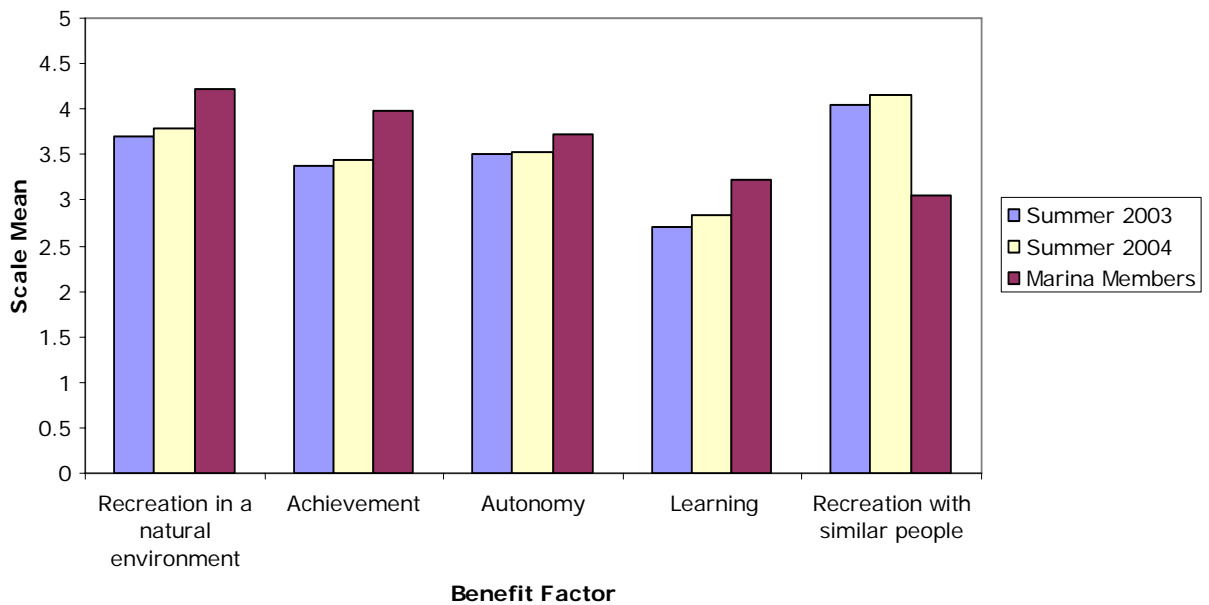


Figure 8. Importance of benefit factors among Lake Shelbyville visitor and marina member mail survey respondents. Note: 5-point scale where 1=very unimportant to 5=very important.

The importance of benefit factors differed among participants in three primary activities (camping, fishing, and motor boating) for both sets of summer visitor respondents:

- 1) campers (and boaters in 2004) identified achievement as less important than anglers,
- 2) anglers identified recreation with similar people as less important than campers and boaters.

Benefits differed between marina members and other visitors, too. Pertaining to benefits importance, marina member rated six benefit items as greater importance than did visitors (“to be on my own”, “to do something with my family”, “to participate in recreational activities”, “to learn about the natural history of the area”, “to enjoy the scenery of the lake”, and “to be creative”) while visitors reported “to get exercise” as more important than marina members. Similarly, in examining benefit attainment, marina members rated five items as more completely attained than visitors (“to use my own equipment”, “to experience something new and different”, “to enjoy the scenery of the lake”, “to be creative”, and “to be away from other people”) while visitors rated three items with greater attained than marina members (“to do something with my family”, “to be with members of my group”, and “to challenge myself”).

Most benefit attainment occurred closest to the Shelbyville dam and Wolf Creek State Park (Tables A32-34; Appendix C; Figures 9-11). Recreation in natural environment, achievement, learning, and recreation with similar people were all most frequently attained closest to Shelbyville and the dams. Autonomy was attained most frequently near Wolf Creek State Park.

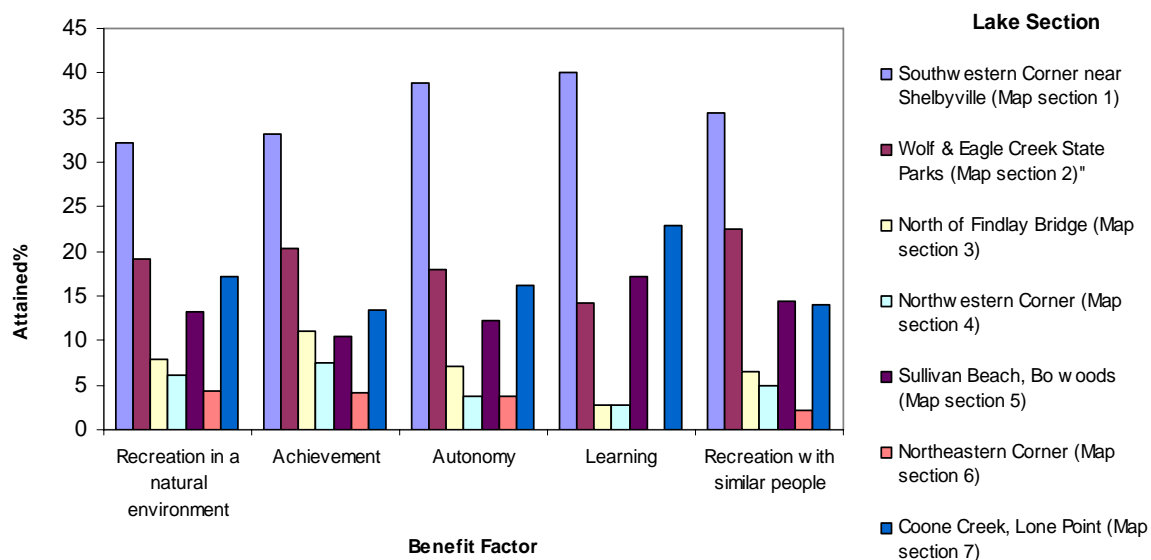


Figure 9. Percent of respondents attaining benefit factor in each lake section, Shelbyville Summer 2003 (see map Appendix C).

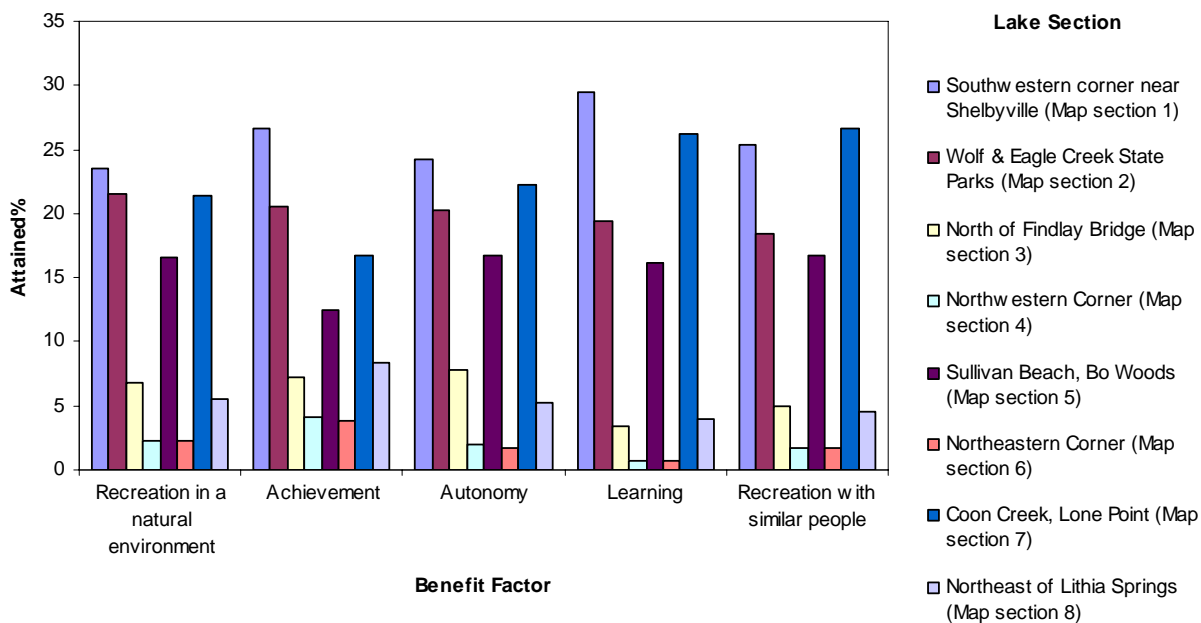


Figure 10. Percent of respondents attaining benefit factor in each lake section, Shelbyville, summer 2004 (see map Appendix C).

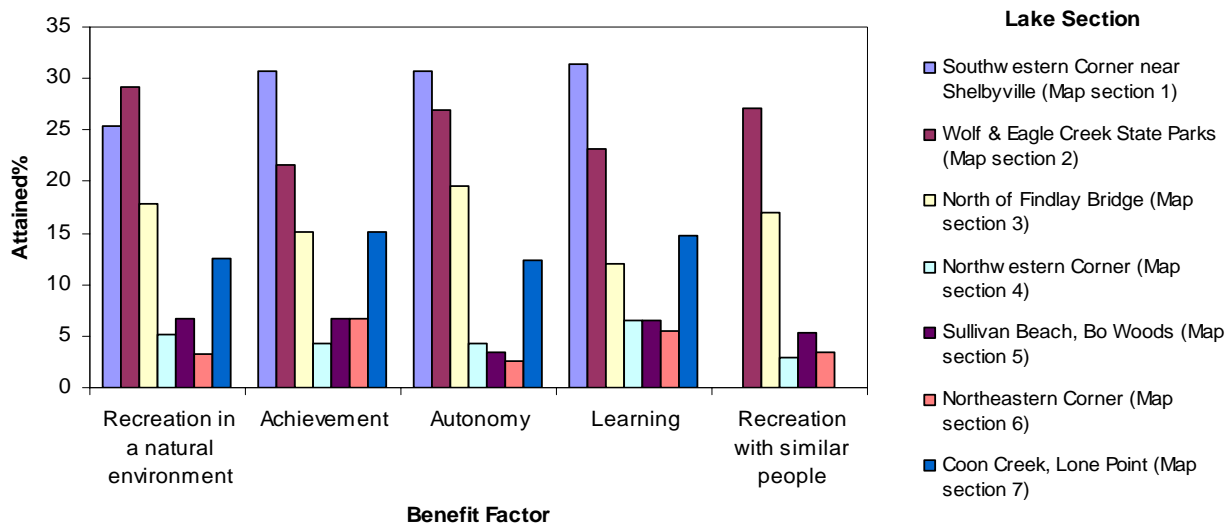


Figure 11. Percent of respondents attaining benefit factor in each lake section, Shelbyville marina members (see map Appendix C).

Crowding Perceptions

Crowding perceptions were near or about as expected for all areas (Table A35; Figure 12). Survey respondents reported crowding expectations were most exceeded at the campsites, yet this was still about as they expected. Crowding perceptions were less than expected on beaches for visitors and less than expected on trails for marina members.

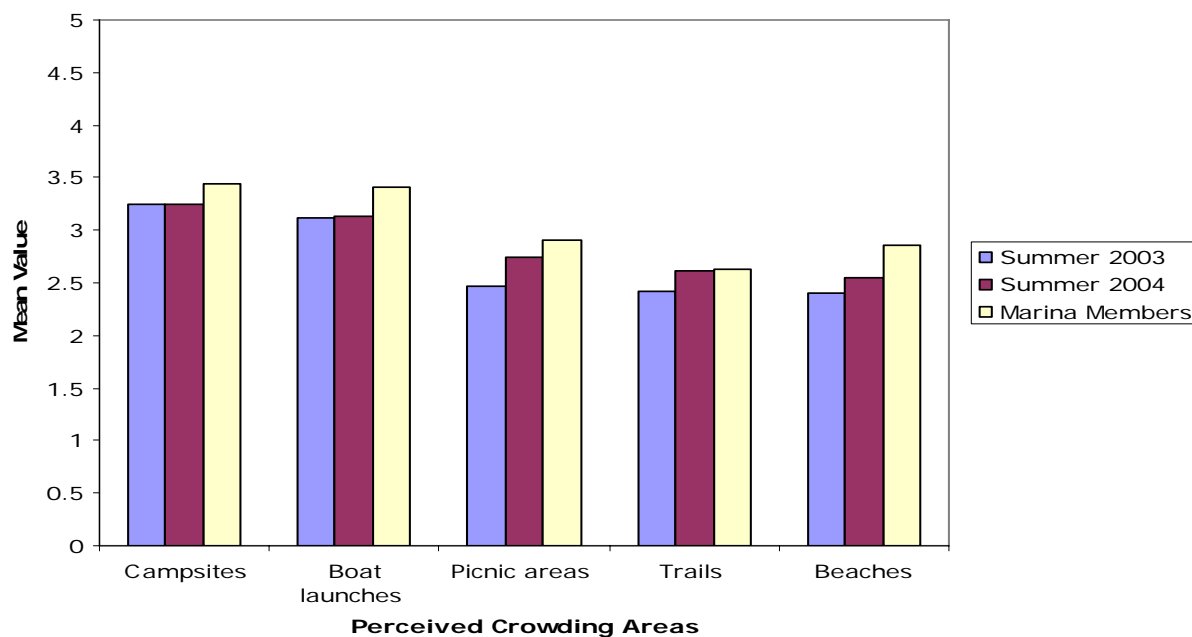


Figure 12. Crowding expectations among Lake Shelbyville visitor and marina member mail survey respondents. Note: 5-point scale where 1=far less than expected, 3=as expected, and 5=far more than expected.

For those who had a preference for the number of people at the site, perceived crowding levels were near or about as preferred for all areas (Table A35; Figure 13). Crowding preferences were most exceeded at boat launches, although this was still about as preferred. In addition, crowding preferences for marina members were also most exceeded at campsites, yet once again were still about as preferred. The number of people at Lake Shelbyville during survey respondent visits neither added nor detracted from about 50% of respondents' visits (Table A36). However, the number of people actually added a lot to the enjoyment of more than 10% and detracted a lot from about 5% of respondents' experiences.

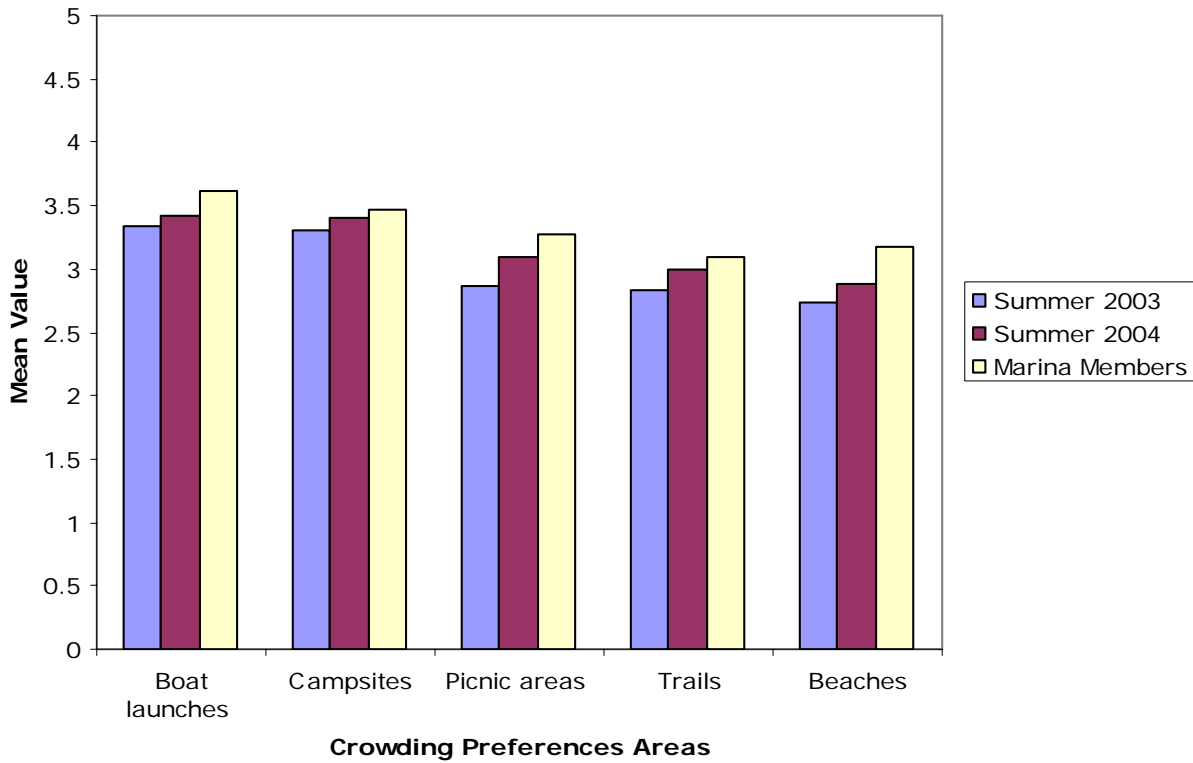


Figure 13. Crowding preferences among Lake Shelbyville visitor and marina member mail survey respondents. Note: 5-point scale where 1=far less than preferred, 3=as preferred, and 5=far more than preferred.

Place Attachment

Place attachment, as measured by two dimensions of identity and dependence, was moderate among Lake Shelbyville respondents. The average place dependence scale score ranged from 2.94 to 3.61 on a scale from 1 to 5 where 5 indicated strong place dependence (Table A37; Figure 14).

Respondents strongly agreed with the statements “Doing what I do at this lake is more important to me than doing it any other place” and “This lake is the best place for what I like to do.” Respondents most strongly disagreed with the statement “The things I do at this lake I would enjoy doing just as much a similar site.” Similarly, the average place identity scale score was moderate, ranging from 3.39 to 3.97 on a scale from 1 to 5 with 5 indicating strong place identity

(Table A38; Figure 14). Respondents most strongly agreed with “This lake means a lot to me” and “This lake is very special to me.”

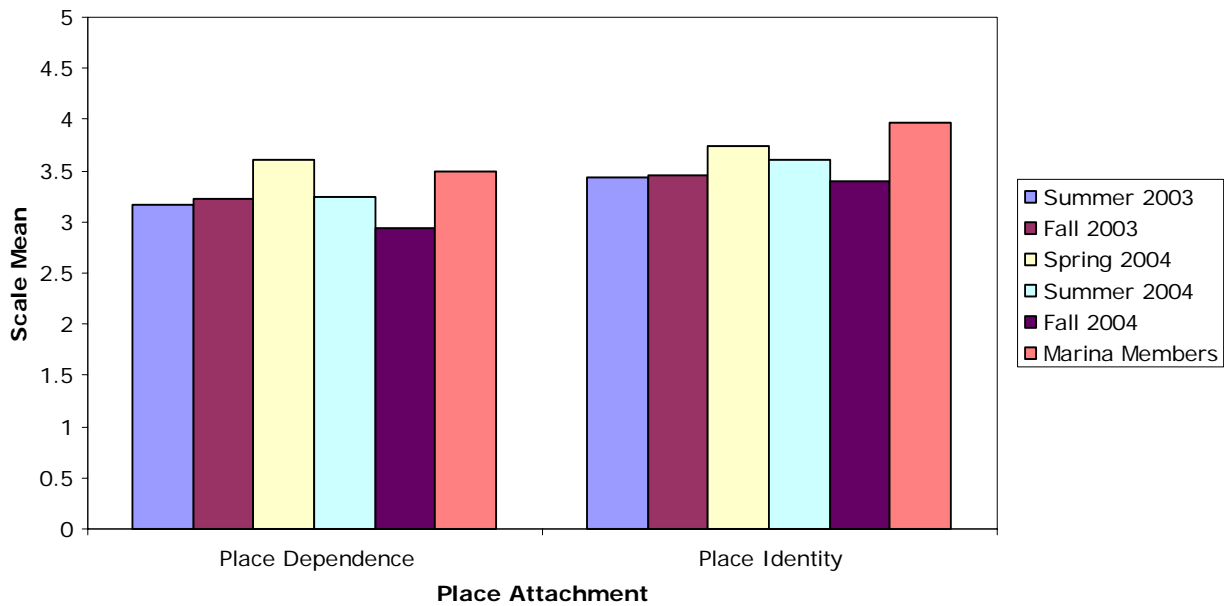


Figure 14. Place attachment among Lake Shelbyville visitor onsite and marina member mail survey respondents. Note: 5-point scale where 1=strongly disagree to 5=strongly agree.

Place attachment did not differ by main recreational activity in 2003. However, in summer 2004, both dimensions differed between main activity groups: motor boaters indicated greater dependence than anglers and campers while anglers indicated significantly stronger identity than campers. Weak to moderate correlations were found between place attachment and experience use history measures. Overall, the stronger but still weak relationships occurred between experience use history items and place identity (Tables A39-43).

Value

Respondents agreed the lake was important economically for the area and that its recreation use was also important (Table A44; Figure 15). Respondents most strongly agreed: “This lake is important to the economy of its local area” and “Recreational use of this lake is important to the economy of the local area.” Respondents less strongly agreed that “Commercial Navigation (barges) on the Kaskaskia River is important to the economy of the region.”

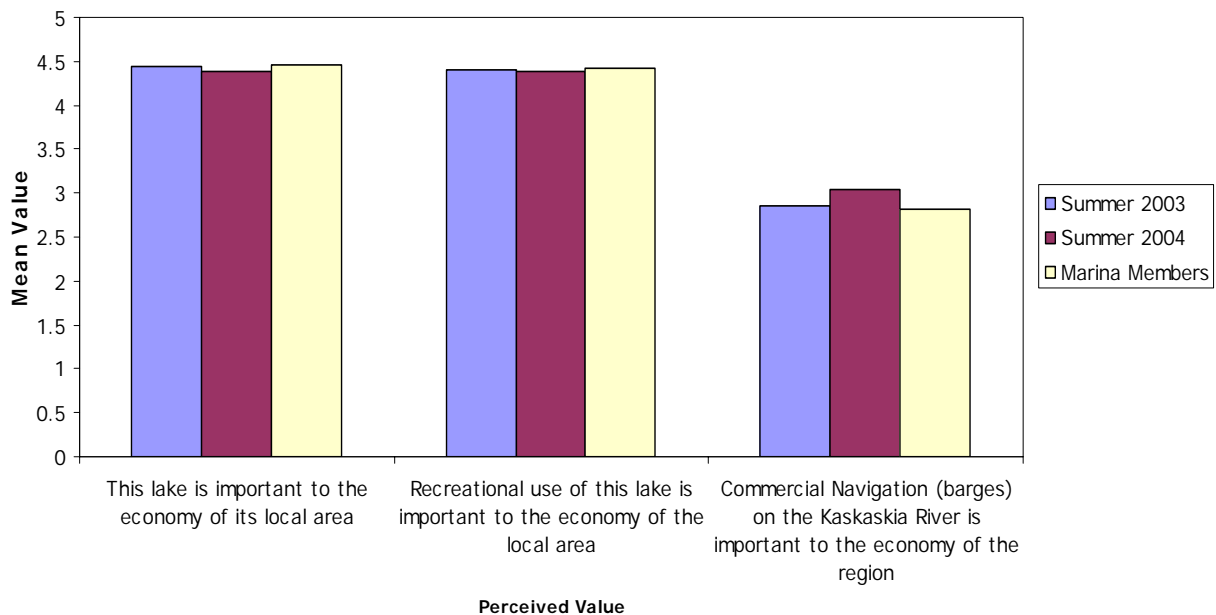


Figure 15. Place value among Lake Shelbyville visitor and marina member mail survey respondents. Note: 5-point scale where 1=strongly disagree to 5=strongly agree.

Discussion and Implications

The purpose of this project was to understand visitor and community benefits, values, and conflict at CE recreation areas. Specifically, the research sought to:

Objective 1: Evaluate CE recreation experiences and benefit attainment through a combination of qualitative and quantitative approaches with particular attention to carrying capacity, place attachment, and values;

Objective 2: Develop or refine social and biophysical indicators and standards of visitor, community, and resource quality;

Objective 3: Develop or refine management strategies, tactics, and actions to create or sustain recreation benefit opportunities; and,

Objective 4: Disseminate information and applications to planners, managers, and other interested audiences.

This report works to fulfill project objectives one through three, focusing on visitor experiences at Carlyle Lake and Lake Shelbyville, Illinois.

Benefits, Benefit Attainment and Strategies To Enhance Benefit Attainment

Visitors identified a variety of benefits important to their experience and expressed attainment of these important benefits. The benefits-based management approach, therefore, appears both appropriate and timely to implement. Across the watershed, several recreation benefit factors were identified as consistently important: recreate in a natural environment, achievement, autonomy, recreate with similar people, and learning. Other research on recreation benefits has found similar benefit categories (Hendricks et al. 2004; McCool and Reilly 1993; Palacio and McCool 1997).

The benefit factors reflect a constituent base with diverse desired benefits from the area. Subsequently, planning and management can retain their focus on program and experience variety to meet these diverse needs. Still, as CE projects seek to differentiate themselves from other recreation opportunities as well as among themselves, understanding what is both most important and most unique for their visitors will be critical. Of course, in Illinois, the CE projects are unique in that they are two of the state's largest lakes and therefore are able to provide certain opportunities—like opportunities for autonomy—that smaller lakes cannot. The benefit opportunities afforded with this size can be marketed and should remain a focal point for management. Similarly, the numerous partnerships that the CE holds provide a variety of educational opportunities that many local and state providers cannot and do not offer. Thus, another differentiation point exists for the CE projects.

All benefits were very close to total attainment, which also likely contributes to the high satisfaction rating with the visit. The benefits at both lakes were most frequently attained in the areas near the dam and around the towns of Carlyle or Shelbyville. In addition, benefit attainment was also reported in the lake section near campgrounds. On the surface, this benefit attainment appears a reflection of lake access. However, certainly elements of the natural and social environments may have a role. Further exploration with visitors can qualify and details these results. Regardless of why, both challenges and opportunity exist with such concentrated benefit attainment. The challenges associated with significantly high benefit attainment in that as of 2004, these benefits are primarily attained in just three of the several areas available. Therefore, future possibilities for crowding, disproportionate resource impacts and possible safety concerns exist. Opportunities associated with concentrated benefit attainment include marketing and concentration of resources.

To enhance planning and management efforts through the BBM framework, managers can focus their efforts on the benefits identified, specifically those attained by visitors. Given the importance of the lake scenery, visual resource management will remain critical to consider through planning and development processes. Particularly in Illinois, the vegetation afforded by some of the lake areas is a significant change from the adjacent farmlands. Thus, retaining and enhancing the larger vegetation will be critical to maintaining the area's aesthetic value. Similarly, given the importance of family recreation, programs might focus on creating opportunities for a variety of family experiences and recreate in natural environments to enhance this important benefit. For example, geocaching is a relatively new outdoor recreation activity engaged in by families and couples that can build into the achievement and social benefits desired by lake survey respondents (Schneider and Powell 2003).

To enhance benefit attainment, managers must first understand exactly what is contributing to the important benefits of learning, achievement, recreating with similar others, and recreating in a natural environment. Intuitively managers can create opportunities for each of these benefits, but a holistic understanding may come for further research and qualitative approaches. Until that additional research is conducted, however, managers can draw from existing research and efforts that indicate optimal environments for each of the important benefits.

Monitoring the benefits and their attainment is the next logical step in this management process. While the best indicators will be determined by onsite teams, a number of possibilities exist (see Table 1 for examples). Two handbooks are available for guidance: (1) *Identifying and Monitoring Indicators of Visitor Experience and Resource Quality: A Handbook for Recreation Resource Managers* (www.cnr.umn.edu/CPSP/publications/Indicators_Standards_Handbook.pdf) and (2) *A Manager's Guide to: Gathering and Using Visitor and Community Benefits Data To Manage Outdoor Recreation Areas*.

Beyond the items that were factor analyzed, managers may also want to monitor benefits they also view as critical, such as health and safety. Indicators to monitor health, both physical and mental, may be the number or percent of use of the area for exercise, body mass index, frequency of visits, and perceptions of exercise attainment, feeling healthy, and relaxing physically. Safety indicators might include the number of accidents, number of citations issued, number of people using personal float devices, and the like.

Table 1. Initial ideas to identify and use indicators for visitor benefits.

Benefit	Differences in importance by activity group	Possible indicators
Recreate in a natural environment		amount of erosion/ shoreline, # of acres of development within project area, water quality, scenery quality, # and types of signs, access type and #s
Achievement	anglers > importance than campers or boaters	# Using own equipment, confidence in ability to use equipment, number of fish caught/kept, perceived satisfaction
Autonomy		# of visitor encounters, size of group encountered, wait time at launches or for campsites, perceptions of being away from other people
Learning		Perceived amount learned in programs, program quality, # people in programs,
Recreate with similar people	campers > importance than boaters than anglers	Perceptions of ability to be with people who enjoy the same things, number of social/recreation opportunities provided; # that renew annual pass

Visitor benefits by activity

Benefits differed by main activity in ways that are not particularly surprising. Previous research in hunting is similar to the findings that anglers identified achievement as more important than other users (Floyd and Gramann 1997; Hammitt et al. 1990; Hazel et al. 1990; Vaske et al. 1982). However, the achievement is not the entire experience and the social and natural environments are also critical. Similarly, the social importance for campers supports past

research (Yuan and McEwen 1989). However, a paucity of research is available on benefit comparison and therefore points to future research opportunities.

Benefits perceived by marina versus on site visitors

The most important benefits marina members identified are opportunities to recreate alone in a natural area and experience escape/autonomy. These results mirror the National Marine Manufacturers Association (2003) survey results that found 79% of boat owners said one of the benefits of boating was being able to unwind and leave pressures behind, 71% indicated that one of the benefits of owning a boat was finding tranquility, and that 67% indicated having a boat has contributed to their well-being. Further, they are similar to benefits other visitors identified as important.

However, several differences did emerge when comparing Lake Shelbyville marina members to Lake Shelbyville visitors both in terms of important and attained benefits. These differences in both suggest possible differentiation in marketing and planning to optimize experiences for the two separate user groups.

Crowding Perceptions

Consistently, results indicated crowding was not an issue. The majority of respondents reported perceived crowding and crowding preferences to be near or about as expected and preferred for all areas. Two areas were identified with possible issues: exceeded crowding expectations included campsites whereas exceeded crowding preferences occurred at campsites and boat launches. Still, as these were about as expected, immediate concern should not arise. However, managers may want to pay particular attention to visitor perceptions at campsites and boat launches as well as work toward setting expectations for the type, level, and timing of users. Further, it may be that those visitors who were too crowded have been displaced.

Place and Value

Moderate place attachment reported by CE lake visitors. The relationship between place attachment and experience use history was comparable to other results and a meta-analysis in which relationships were weak to moderate (Hammitt et al. 2004; Backlund and Williams 2004). The differences in identity and dependence by activity type are of interest. Anglers identified with the lakes significantly more than other main activity groups. Shelbyville boaters and Carlyle campers indicated greater dependence than other main activity groups. Further, at Shelbyville, marina members reported greater place identity than visitors in summer 2003, fall 2003, and fall 2004, and greater place dependence than visitors in summer 2003, fall 2003, summer 2004, and fall 2004.

Positive place attachment generally leads to more desirable attributes among visitors—such as support for management actions or pro-environmental behavior. Subsequently, increasing place identity or dependence is generally desirable. Williams and Stewart (1998) suggest that place attachment can be increased by knowing and using local place names that are used to communicate in management plans, understanding the politics of place, as well as understanding the differences of meaning to various groups. This project provides a start to understanding differences in place among visitor groups. However, reasons for these differences deserve further attention.

Beyond the place attachment associated with the CE projects, Carlyle Lake and Lake Shelbyville survey respondents agreed that the lake, as well as recreational use of the lake, is economically important to the area. However, respondents agreed less that commercial navigation on the river is important to the economy of the area. Thus, an educational and learning opportunity exists regarding educating visitors about the importance of the commercial navigation. Existing interpretative exhibits should be examined for effectiveness and, if deemed appropriate, replicated across the watershed.

In sum, the CE managers can be assured that benefits are important to visitors, that the current visitors are attaining benefits, and overall have a positive experience at these Illinois sites. Moderate place attachment exists among the visitors. Opportunities to enhance and expand upon benefit attainment exist as do opportunities to enhance place attachment are possible.

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Appendix A- Tables

Table A2. Response rate among Carlyle Lake visitor onsite survey respondents.

	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
Onsite	1121		180		83		1160		170	
Nonresponse	191		79		7		237		1	
Unusable	3		2		3		5		7	
Effective sample	1118		178		80		1155		163	
Response rate	927	82.9	99	55.6	73	91.3	918	79.5	162	99.4

Table A3. Response rate among Carlyle Lake visitor mail survey respondents.

	Summer 2003		Summer 2004	
	n	%	n	%
Initial mailing	532		472	
Undeliverable	22		24	
Unusable	2		3	
Effective sample	508		445	
Response rate	232	45.7	230	51.7

Table A4. Demographic characteristics among Carlyle Lake visitor onsite survey respondents.

Demographic characteristic	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
Age in years	n = 863; \bar{M} = 45.44		n = 57; \bar{M} = 49.96		n = 62; \bar{M} = 44.60		n = 820; \bar{M} = 43.73		n = 133; \bar{M} = 46.55	
18 – 30	159	18.4	4	7.0	16	25.8	158	19.3	24	18.0
31 – 40	191	22.1	13	22.8	9	14.5	190	23.2	24	18.0
41 – 50	215	24.9	15	26.3	15	24.2	226	27.6	32	24.1
51 – 60	120	13.9	8	14.0	10	16.1	124	15.1	21	15.8
61 – 70	125	14.5	11	19.3	10	16.1	93	11.3	21	15.8
>71	53	6.1	6	10.5	2	3.2	29	3.5	11	8.3
Total	863	99.9	57	99.9	62	99.9 ¹	820	100	133	100.0
Education level	n = 914		n=73		n=73		n=896		n=160	
Eighth grade	19	2.1	2	2.7	1	1.4	15	1.7	8	5.0
High school/GED	332	36.3	35	47.9	26	35.6	305	34.0	78	48.8

Demographic characteristic	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
Tech school	52	5.7	4	5.5	4	5.5	59	6.6	14	8.8
Some college	264	28.9	17	23.3	28	38.4	245	27.3	39	24.4
College degree	193	21.1	14	19.2	10	13.7	217	24.2	18	11.3
Advanced degree	54	5.9	1	1.4	4	5.5	55	6.1	3	1.9
Total	914	100.0	73	100.0	73	100.0	896	99.9 ¹	160	100.0
Ethnicity	n=575		n = 36		n = 65		n =319		n=129	
Not Hispanic or Latino	547	95.1	36	100.0	63	96.9	303	95.0	125	96.9
Hispanic or Latino	28	4.9	0	0.0	2	3.1	16	5.0	4	3.1
Total	575	100.0	36	100.0	65	100.0	319	100	129	100.0
Race²	n = 931		n = 112		n = 70		n =909		n=162	
White	771	82.8	60	81.1	66	94.3	754	82.9	4	2.5
Black or African American	83	8.9	14	18.9	1	1.4	98	10.8	17	10.5
American Indian or Alaska Native	44	4.7	0	0.0	3	4.3	23	2.5	3	1.9
Other	15	1.6	0	0.0	0	0.0	16	1.8	133	82.1
Asian	13	1.4	0	0.0	0	0.0	18	2.0	2	1.2
Native Hawaiian or other Pacific Islander	5	0.5	0	0.0	0	0.0	0	0	3	1.9
Total	931	99.9	74	100.0	70	100.0	909	100	162	100.1 ¹
Language speak most of time	n = 919		n = 73		n = 72		n =905		n=161	
English	898	97.7	73	100.0	72	100.0	897	99.1	159	98.8
Other	13	1.4	0	0.0	0	0.0	7	0.8	0	0.0
Spanish	8	0.9	0	0.0	0	0.0	1	0.1	2	1.2
Total	919	100.0	73	100.0	72	100.0	905	100	161	100.0
Language read most of the time	n = 916		n = 73		n = 72		n =902		n=106	
English	902	98.5	73	100.0	72	100.0	897	99.4	158	98.8
Other	8	0.9	0	0.0	0	0.0	4	0.4	0	0.0
Spanish	6	0.7	0	0.0	0	0.0	1	0.1	2	1.3
Total	916	100.1	73	100.0	72	100.0	902	99.9 ¹	106	100.0 ¹
Income (before taxes)	n = 797		n = 66		n = 67		n =708		n=120	
Less than \$5,000	21	2.6	0	0.0	2	3.0	14	2.0	2	1.7
\$5,000-9,999	8	1.0	0	0.0	0	0.0	11	1.6	2	1.7
\$10,000-14,999	11	1.4	0	0.0	0	0.0	10	1.4	0	0.0
\$15,000-24,999	134	16.8	13	19.7	5	7.5	60	8.5	14	11.7

Demographic characteristic	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
\$25,000-34,999	110	13.8	14	21.2	3	4.5	82	11.6	14	11.7
\$35,000-49,999	103	12.9	14	21.2	8	11.9	97	13.7	20	16.7
\$50,000-74,999	234	29.4	16	24.2	16	23.9	218	30.8	44	36.7
\$75,000-99,999	102	12.8	4	6.1	18	26.9	134	18.9	16	13.3
\$100,000-124,999	32	4.0	1	1.5	6	9.0	42	5.9	2	1.7
\$125,000-149,000	13	1.6	3	4.5	9	13.4	14	2.0	6	5.0
\$150,000-174,000	12	1.5	1	1.5	0	0.0	14	2.0	0	0.0
\$175,000 or more	17	2.1	0	0.0	0	0.0	12	1.7	0	0.0
Total	797	99.9	66	100.0	67	100.0	708	100.1 ¹	120	100.0
Gender	n = 919		n = 73		n = 66		n = 903		n = 144	
Male	524	57.0	55	75.3	53	80.3	593	65.7	107	74.3
Female	395	43.0	18	24.7	13	19.7	310	34.3	37	25.7
Total	919	100.0	73	100.0	66	100.0	903	100	144	100.0

¹ Does not equal 100 due to rounding.

² Respondents were able to check all applicable races.

Table A5. Past visitation of Carlyle Lake visitor onsite survey respondents.

Past Visitation	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
First visitation	n = 927		n = 71		n = 73		n = 910		n = 158	
No	838	90.4	66	93.0	72	98.6	859	94.4	140	88.6
Yes	89	9.6	5	7.0	1	1.4	51	5.6	18	11.4
Total	927	100.0	71	100.0	73	100.0	910	100	158	100.0
Total times visited	n= 471, \bar{M} = 29.73, S.D. = 35.16		**		**		n=541, \bar{M} =40.76, S.D. =39.72		n=46, \bar{M} =32.67, S.D.=33.84	
1	8	1.7					43	7.9	0	0.0
2	34	7.2					29	5.4	1	2.2
3	39	8.3					28	5.2	2	4.3
4	30	6.4					26	4.8	3	6.5
5	33	7.0					76	14.0	5	10.9
6-10	90	19.1					37	6.8	8	17.4
11-15	31	6.6					38	7.0	3	6.3
16-20	40	8.5					18	3.3	4	8.7
21-25	14	3.0					86	15.9	1	2.2

26-50	60	12.7					74	13.7	10	21.7
51-100	48	10.2					86	15.9	9	19.6
>100	44	9.3					541	99.9 ¹	0	0.0
Total	471	100.0					43	7.9	46	99.8 ¹
Times in past 12 months	n = 704, \bar{M} = 12.58, S.D. = 22.0		n=27, \bar{M} =5.37, S.D.=3.03		n=23, \bar{M} =11.13, S.D.=13.79		n =755, \bar{M} =12.14, S.D. =20.23		n=66, \bar{M} =11.27, S.D.=19.26	
1	103	14.6	2	7.4	4	17.4	118	15.6	10	15.2
2	100	14.2	2	7.4	3	13.0	111	14.7	11	16.7
3	91	12.9	3	11.1	1	4.3	64	8.5	7	10.6
4	68	9.7	5	18.5	0	0.0	70	9.3	3	4.5
5	48	6.8	3	11.1	4	17.4	51	6.8	5	7.6
6-10	123	17.5	11	40.7	4	17.4	136	18.0	15	22.7
11-15	51	7.2	1	3.7	2	8.7	56	7.4	3	4.5
16-20	33	4.7	0	0.0	3	13.0	49	6.5	5	7.6
21-25	10	1.4	0	0.0	0	0.0	26	3.4	2	3.0
26-50	36	5.1	0	0.0	2	8.7	43	5.7	3	4.5
51-75	10	1.4	0	0.0	0	0.0	2	0.3	0	0.0
76-100	12	1.7	0	0.0	0	0.0	17	2.3	2	3.0
>100	19	2.7	0	0.0	0	0.0	12	1.6	0	0.0
Total	704	99.9 ¹	27	99.9 ¹	27	99.9 ¹	755	100.1 ¹	66	99.9 ¹
Years visited	n = 784, \bar{M} = 15.85, S.D. = 11.34		n=38, \bar{M} =14.76, S.D.= 10.83		n=50, \bar{M} =19.44, S.D.= 11.52		n =774, \bar{M} =16.15, S.D. =11.66		n=109, \bar{M} =17.06, S.D.=11.70	
1	50	6.4	1	2.6	0	0.0	42	5.4	6	5.5
2	58	7.4	3	7.9	2	4.0	54	7.0	6	5.5
3	46	5.9	3	7.9	0	0.0	49	6.3	4	3.7
4	30	3.8	2	5.3	2	4.0	28	3.6	4	3.7
5	37	4.7	3	7.9	3	6.0	26	3.4	7	6.4
6-10	115	14.7	6	15.8	10	20.0	130	16.8	17	15.6
11-15	87	11.1	4	10.5	6	12.0	99	12.8	11	10.1
16-20	118	15.1	7	18.4	7	14.0	110	14.2	13	11.9
21-25	68	8.7	1	2.6	3	6.0	66	8.5	11	10.1
26-30	82	10.5	6	15.8	5	10.0	85	11.0	14	12.8
31-35	62	7.9	2	5.3	12	24.0	32	4.1	16	14.7
>35	31	4.0	0	0.0	0	0.0	53	6.8	0	0.0
Total	784	100.2 ¹	38	100.0	38	100.0	774	99.9 ¹	109	100.0

¹ Does not equal 100 due to rounding.

** Data not reported due to low response numbers.

Table A6. Main recreational activity among Carlyle Lake visitor onsite survey respondents.

	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
Main recreational activity	n=926		n = 74		n = 73		n=922		n = 16	
Fishing	312	33.7	25	33.8	31	42.5	403	43.7	73	45.6
Camping	223	24.1	21	28.4	18	24.7	182	19.7	46	28.8
Swimming	109	11.8	1	1.4	0	0.0	38	4.1	5	3.1
Relaxing/Stress Reduction	92	9.9	4	5.4	4	5.5	67	7.3	5	3.1
Motorboating	55	5.9	3	4.1	2	2.7	106	11.5	0	0.0
Sunbathing	31	3.3	0	0.0	2	2.7	7	0.8	0	0.0
Picnicking	26	2.8	5	6.8	1	1.4	8	0.9	1	0.6
Jet Skiing	24	2.6	2	2.7	1	1.4	32	3.5	4	2.5
Bicycling	11	1.2	3	4.1	0	0.0	13	1.4	4	2.5
Other	10	1.1	1	1.4	3	4.1	13	1.4	4	2.5
Sailing	8	0.9	0	0.0	5	6.8	7	0.8	3	1.9
Walking/Hiking	8	0.9	1	1.4	0	0.0	10	1.1	2	1.3
Waterskiing	7	0.8	1	1.4	0	0.0	21	2.3	1	0.6
Observing/Photographing Wildlife or Nature	5	0.5	2	2.7	1	1.4	2	0.2	3	1.9
Driving for Pleasure	3	0.3	2	2.7	2	2.7	3	0.3	2	1.3
Horseback Riding	1	0.1	0	0.0	0	0.0	0	0.0	0	0.0
Houseboating	1	0.1	0	0.0	0	0.0	0	0.0	1	0.6
Hunting	0	0.0	2	2.7	1	1.4	0	0.0	5	3.1
Canoeing/Kayaking	0	0.0	0	0.0	1	1.4	0	0.0	1	0.6
Using Playgrounds	0	0.0	1	1.4	0	0.0	8	0.9	0	0.0
Volleyball	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0
Windsurfing/Sail Boarding	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0

Table A7. Main recreational activity among Carlyle Lake visitor mail survey respondents.

	Summer 2003		Summer 2004	
	n	%	n	%
Main recreational activity	n = 232		n =227	
Camping	86	37.1	90	39.6
Fishing	79	34.1	79	34.8
Swimming	21	9.1	3	1.3
Motor boating	15	6.5	29	12.8
Relaxing/stress reduction	10	4.3	11	4.8
Jet skiing	4	1.7	6	2.6
Sailing	4	1.7	0	0.0
Picnicking	3	0.4	0	0.0
Water skiing	3	1.3	0	0.0
Bicycling	2	0.9	2	0.9
Other	2	0.9	0	0.0
Walking/hiking	2	0.9	3	1.3
Sunbathing	1	0.4	1	0.4
Driving for pleasure	0	0.0	1	0.4
Observing/photographing wildlife or nature	0	0.0	1	0.4
Using playgrounds	0	0.0	1	0.4

Table A8. Reported importance and attainment of experiences among Carlyle Lake visitor mail survey respondents.

Experience	Summer 2003						Summer 2004					
	Importance		Attainment		Attainment		Importance		Attainment		Attainment	
	M ^a	S.D.	M ^b	S.D.	M ^c	S.D.	M ^a	S.D.	M ^b	S.D.	M ^c	S.D.
To do something with my family	4.31	1.05	3.71	0.58	3.71	0.57	4.17	1.11	3.49	0.87	3.69	0.58
	n=215		n=177		n=157		n=214		n=156		n=138	
To enjoy the scenery of the lake	4.24	1.02	3.60	0.64	3.61	0.62	4.28	1.00	3.45	0.76	3.48	0.73
	n=220		n=176		n=164)		n=216		n=164		n=152	
To get away from the usual demands of life	4.17	1.02	3.44	0.69	3.48	0.66	4.17	1.04	3.44	0.70	3.47	0.68
	n=213		n=164		n=148		n=217		n=156		n=144	
To relax physically	4.05	1.03	3.41	0.73	3.46	.70	4.08	1.02	3.40	0.68	3.47	0.60
	n=219		n=162		n=144		n=214;		n=155		n=144	
To be close to nature	3.92	1.03	3.38	0.71	3.42	0.66	3.80	1.04	3.33	0.77	3.44	0.65
	n=212		n=153		n=134		n=215		n=144		n=120	
To use my own equipment	3.92	1.09	3.66	0.64	3.72	0.56	3.90	1.13	3.70	0.66	3.78	0.51
	n=212		n=147		n=128		n=218;		n=153		n=135	
To feel healthier	3.86	1.06	3.33	0.68	3.34	0.66	3.67	1.14	3.09	0.80	3.22	0.69
	n=214		n=141		n=123		n=212		n=127		n=105	
To be with people who enjoy same things I do	3.85	1.20	3.59	0.65	3.64	0.62	3.94	1.14	3.51	0.80	3.65	0.59
	n=219		n=148		n=124		n=215		n=148		n=124	
To experience nature	3.79	1.10	3.31	0.76	3.41	0.70	3.83	1.05	3.27	0.81	3.42	0.63
	n=210		n=153		n=123		n=207		n=151		n=123	
To be with members of my group	3.74	1.13	3.58	0.66	3.66	0.61	3.77	1.23	3.30	0.98	3.63	0.59
	n=210;		n=140;		n=108		n=210		n=144		n=110	
To participate in recreational activities	3.65	1.12	3.37	0.77	3.44	0.71	3.63	1.16	3.12	0.97	3.42	0.67
	n=208		n=151		n=116		n=213		n=139		n=107	
To get exercise	3.55	1.12	3.19	0.73	3.24	0.69	3.42	1.12	3.02	0.91	3.30	0.65
	n=212		n=132		n=101		n=210		n=133		n=94	
To think about my personal values	3.51	1.20	3.27	0.77	3.43	0.68	3.30	1.10	2.88	1.01	3.25	0.79
	n=207		n=12		n=92		n=210		n=118		n=71	
To test my skills and abilities	3.41	1.12	3.13	0.73	3.26	0.67	3.38	1.07	2.84	1.00	3.20	0.71
	n=213)		n=133		n=86		n=214		n=125		n=76	
To experience new and different things	3.40	1.12	2.95	0.73	2.99	0.71	3.24	1.06	2.50	0.95	2.85	0.77
	n=209		n=128		n=82		n=212		n=118		n=71	

To have thrills and excitement	3.37	1.11	3.21	0.74	3.26	0.68	3.32	1.07	2.81	1.03	3.22	0.76
	n=209		n=120		n=76		n=216		n=127		n=74	
To be on my own	3.36	1.20	3.12	0.75	3.18	0.72	3.25	1.32	3.02	0.99	3.30	0.76
	n=211		n=133		n=89		n=213		n=135		n=83	
To experience solitude	3.33	1.17	3.11	0.74	3.23	0.69	3.33	1.17	2.88	1.02	3.20	0.79
	n=206		n=125		n=80		n=211		n=120		n=84	
To be away from other people	3.31	1.23	2.96	0.84	3.11	0.79	3.11	1.19	2.66	0.98	3.05	0.81
	n=211		n=126		n=70		n=212		n=117		n=64	
To have a wilderness experience	3.29	1.14	3.02	0.77	3.11	0.73	3.28	1.18	2.93	1.04	3.34	0.73
	n=208		n=135		n=83		n=210		n=131		n=80	
To challenge myself	3.24	1.11	3.06	0.78	3.17	0.76	3.23	1.05	2.61	0.98	3.06	0.75
	n=209		n=111		n=65		n=213		n=117		n=64	
To share my skill and knowledge with others	3.16	1.12	3.00	0.81	3.17	0.75	3.13	1.08	2.55	1.04	3.11	0.73
	n=210		n=103		n=53		n=216;		n=121		n=59	
To meet new people	3.09	1.18	3.01	0.76	3.17	0.73	3.06	1.13	2.62	1.03	3.22	0.70
	n=212		n=114		n=63		n=216		n=121		n=59	
To learn about the natural history of the area	3.04	1.12	2.93	0.83	3.00	0.84	2.92	1.04	2.30	1.06	2.86	0.86
	n=207		n=108		n=55		n=212		n=109		n=50	
To learn about the cultural history of the area	2.93	1.14	2.91	0.84	3.09	0.81	2.84	1.03	2.30	1.09	2.88	0.86
	n=207		n=107		n=46		n=208		n=107		n=42	
To be creative by doing something such as sketching, painting, taking photographs	2.71	1.18	3.05	0.80	3.36	0.64	2.41	1.01	2.05	1.12	2.96	0.77
	n=211		n=100		n=36		n=210		n=98		n=23	

^aImportance rated on a scale of 1 to 5, where 1=very unimportant and 5=very important.

^bAttainment rated by all respondents on a scale of 2 to 4, where 1=did not attain and 4=totally attained.

^cAttainment rated by those respondents indicating benefit was important (4 to 5), where 1=did not attain and 4=totally attained.

Table A9. Factor loadings for experience attribute items among Carlyle Lake survey respondents, summer 2003.

Items	Factors		
	Learning	Experiencing Nature alone	Recreating with Similar People
Learn natural history of the area	.93		
Learn cultural history of the area	.91		
Experience new and different things	.77		
Have a wilderness experience		.82	
Use my own equipment		.69	
Experience nature		.66	
Be close to nature		.62	
Be away from other people		.53	
Do something with my family			.83
Be with members of my group			.80
Participate in recreation activity			.69
Be with people who enjoy the same things as I do			.42
Eigen value	2.65	2.49	2.30
Alpha (α)	0.90	0.75	0.70
Variance explained (%)	22.08	20.71	19.52

Table A10. Factor loadings for experience attribute items among Carlyle Lake survey respondents, summer 2004.

Items	Factors			
	Learning	Experiencing Nature Alone	Recreating with Similar People	Achievement
Learn cultural history of the area	.91			
Learn natural history of the area	.88			
Be creative	.70			
Be away from others		.87		
Experience solitude		.87		
Be with members of my group			.88	
Do something with my family			.79	
Be with people who enjoy the same things as I do			.77	
Enjoy scenery of lake			.68	
Participate in recreation activity			.44	
Challenge oneself				.87
Test skills and abilities				.86
Share skill and knowledge with others				.86
Eigen value	2.32	1.69	2.81	2.51
Alpha (α)	.82	.75	.81	.87
Variance explained (%)	17.86	12.97	21.63	19.31

Table A11. Percent of reported attained experiences among Carlyle Lake visitor survey respondents based on lake sections, summer 2003.

Experience Factors	Carlyle Lake Section							
	One	Two	Three	Four	Five	Six	Seven	Total
Learning	38.3 (n=72)	12.2 (n=23)	21.8 (n=41)	17.6 (n=33)	3.2 (n=6)	3.7 (n=7)	3.2 (n=6)	188
Experiencing nature alone	33.6 (n=191)	13.2 (n=75)	20.1 (n=114)	20.8 (n=118)	5.6 (n=32)	3.3 (n=19)	3.3 (n=19)	568
Recreate w/ similar people	35.7 (n=205)	15.2 (n=87)	22.0 (n=126)	17.9 (n=103)	4.9 (n=28)	2.6 (n=15)	1.7 (n=10)	574

Table A12. Percent of reported attained experiences among Carlyle Lake visitor survey respondents based on lake sections, summer 2004.

Experience Factors	Carlyle Lake Section							
	One	Two	Three	Four	Five	Six	Seven	Total
Learning	41.2 (n=35)	4.7 (n=4)	21.2 (n=18)	28.2 (n=24)	4.7 (n=4)	0 (n=0)	0 (n=0)	85
Experiencing nature alone	22.3 (n=25)	10.7 (n=12)	29.5 (n=33)	30.4 (n=34)	7.1 (n=8)	0 (n=0)	0 (n=0)	112
Recreate w/ similar people	32.5 (n=196)	10.4 (n=63)	23.8 (n=144)	23.8 (n=144)	8.4 (n=51)	0.5 (n=3)	0.5 (n=3)	604
Achievement	39.5 (n=64)	10.5 (n=17)	25.3 (n=41)	21.0 (n=34)	3.7 (n=6)	0 (n=0)	0 (n=0)	162

Table A13. Perceived crowding and preferences among Carlyle Lake visitor mail survey respondents.

Perceived crowding	Summer 2003				Summer 2004			
	<u>M</u> ¹	S.D.	% did not visit	% no expectation	<u>M</u> ¹	S.D.	% did not visit	% no expectation
Campsites	3.45 (n=218)	1.12	30.7	1.4	3.48 (n=219)	.98	31.1	3.2
Boat launches	2.98 (n=217)	1.14	41.0	3.2	3.15 (n=218)	.84	39.4	2.3
Picnic areas	2.95 (n=215)	1.16	47.9	2.8	3.14 (n=218)	.90	61.0	1.8
Beaches	2.85 (n=216)	1.05	41.7	1.4	2.87 (n=221)	.71	52.0	2.7
Trails	2.58 (n=212)	1.17	69.3	1.9	2.48 (n=217)	1.01	66.8	2.8
Crowding preferences	<u>M</u> ¹	S.D.	% did not visit	% no preference	<u>M</u> ¹	S.D.	% did not visit	% no preference
Campsites	3.26 (n=187)	1.44	30.5	7.5	3.55 (n=180)	1.09	33.3	3.9
Boat launches	2.97 (n=183)	1.38	44.3	6.0	3.30 (n=178)	.87	40.4	2.8
Picnic areas	2.97 (n=182)	1.33	46.2	6.6	3.29 (n=176)	.95	63.1	3.4
Beaches	2.91 (n=185)	1.40	43.8	5.9	3.09 (n=180)	.80	53.3	4.4
Trails	2.46 (n=180)	1.58	68.3	7.2	2.90 (n=178)	.83	68.0	3.4

¹Rated on a scale of 1 to 5, where 1=far less than expected, 3=as expected and 5=far more than expected.

²Rated on a scale of 1 to 5, where 1=far less than preferred, 3=as preferred and 5=far more than preferred.

Table A14. Reported affect of overall enjoyment from the number of people at the lake among Carlyle Lake visitor mail survey respondents.

Affect of overall enjoyment from the number of people at the lake	Summer 2003		Summer 2004	
	Frequency (n=221)	%	Frequency (n=223)	%
No effect on my enjoyment	117	52.9	128	57.4
Detracted a little from my enjoyment	44	19.9	38	17.0
Added a lot to my enjoyment	29	13.1	27	12.1
Added a little to my enjoyment	24	10.9	25	11.2
Detracted a lot from my enjoyment	7	3.2	5	2.2

Table A15. Place dependence among Carlyle Lake visitor onsite respondents.

Scale items	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.
Doing what I do at this lake is more important to me than doing it any other place.	3.54 (n=904)	1.00	3.42 (n=73)	1.03	3.80 (n=65)	0.81	3.51 (n=900)	1.07	3.84 (n=155)	0.83
This lake is the best place for what I like to do.	3.51 (n=900)	1.05	3.26 (n=74)	1.12	3.69 (n=65)	0.85	3.49 (n=901)	1.08	3.78 (n=157)	0.77
I get more satisfaction out of visiting this lake than any other.	3.27 (n=893)	1.08	2.22 (n=74)	0.90	2.48 (n=65)	0.92	3.26 (n=887)	1.11	2.60 (n=157)	0.89
I wouldn't substitute any other area for doing the types of things I do at this lake.	3.24 (n=906)	1.11	3.41 (n=74)	1.06	3.86 (n=65)	0.93	3.19 (n=898)	1.11	3.75 (n=154)	0.78
No other place can compare to this lake.	2.98 (n=881)	1.13	3.20 (n=74)	1.06	3.87 (n=63)	0.85	2.93 (n=873)	1.15	3.66 (n=154)	0.93
The things I do at this lake I would enjoy doing just as much at a similar site. ²	2.41 (n=909)	1.07	3.32 (n=73)	1.10	4.13 (n=63)	0.85	2.35 (n=901)	1.02	3.83 (n=155)	0.82
Scale	3.16	0.80	3.13	0.79	3.63	0.55	3.13		3.57	0.55
Alpha (α)	0.85		0.85		0.65		0.83		0.70	

¹ Rated on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.

² Reverse coded.

Table A16. Place identity among Carlyle Lake visitor onsite survey respondents.

Scale items	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.
This lake means a lot to me.	3.77 (n=905)	0.95	3.95 (n=73)	0.74	4.38 (n=63)	0.58	3.86 (n=901)	0.91	4.00 (n=157)	0.82
This lake is very special to me.	3.49 (n=902)	1.02	3.23 (n=73)	1.09	4.25 (n=64)	0.87	3.51 (n=892)	1.04	4.04 (n=152)	0.88
I am very attached to this lake.	3.42 (n=908)	1.06	3.18 (n=73)	1.10	4.39 (n=64)	0.81	3.48 (n=899)	1.04	4.03 (n=153)	0.97
I identify strongly with this lake.	3.39 (n=902)	1.03	3.60 (n=72)	0.91	4.49 (n=65)	0.66	3.45 (n=887)	1.01	4.21 (n=154)	0.86
Visiting this lake says a lot about who I am.	3.28 (n=901)	1.04	3.35 (n=74)	0.99	4.45 (n=65)	0.69	3.35 (n=882)	1.00	4.13 (n=154)	0.94
I feel this lake is a part of me.	3.18 (n=898)	1.08	3.58 (n=72)	0.93	4.52 (n=65)	0.69	3.20 (n=881)	1.05	4.21 (n=154)	0.89
Scale	3.42	0.91	3.49	0.81	4.41	0.63	3.47		4.09	0.79
Alpha (α)	0.94		0.92		0.94		0.93		0.93	

¹Rated on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.

Table A17. Correlations between place attachment and experience use history items among Carlyle Lake visitors, summer 2003.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.68**	.16**	.16**	.23**
Place dependence		1	.08	.07	.06
Total visits			1	.53**	.46**
Visits last 12 months				1	.23**
Number of years visiting					1

**Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A18. Correlations between place attachment and experience use history items among Carlyle Lake visitors, fall 2003.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.61**	.64*	.14	.45**
Place dependence		1	.17	.13	.51**
Total visits			1	-.18	.79**
Visits last 12 months				1	.30
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A19. Correlations between place attachment and experience use history items among Carlyle Lake visitors, spring 2004.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.40**	.50	.10	-.10
Place dependence		1	.33	.05	.12
Total visits			1	.91**	-.76*
Visits last 12 months				1	.12
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A20. Correlations between place attachment and experience use history items among Carlyle Lake visitors, summer 2004.

Variables	Place identity	Place dependence	Total Visits	Visits last 12 months	Number of years visiting
Place identity	1	.59**	.29**	.15**	.24**
Place dependence		1	.10*	.19**	.02
Total visits			1	.54**	.50**
Visits last 12 months				1	.25**
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A21. Correlations between place attachment and experience use history items among Carlyle Lake visitors, fall 2004.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.56**	.14	.16	.23*
Place dependence		1	.15	.17	.13
Total visits			1	.55**	.61**
Visits last 12 months				1	.33*
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A22. Perceived characteristics about Carlyle Lake and the Kaskaskia River among visitor mail survey respondents.

	Summer 2003		Summer 2004	
	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.
This lake is important to the economy of its local area.	4.35 (n=224)	0.74	4.36 (n=221)	0.74
Recreational use of this lake is important to the economy of the local area.	4.31 (n=226)	0.75	4.31 (n=219)	0.73
The lake is inviting.	4.22 (n=226)	0.69	4.17 (n=222)	0.66
The area along and near the lake is safe.	3.75 (n=226)	0.84	3.80 (n=220)	0.76
The water quality of this lake is good.	3.48 (n=221)	1.01	3.40 (n=221)	1.01
Erosion of the lakeshore is a serious problem.	3.15 (n=221)	1.05	3.40 (n=206)	0.86
Commercial Navigation (barges) on the Kaskaskia River is important to the economy of the region.	3.13 (n=216)	0.95	3.20 (n=217)	1.14
There are many conflicts between local residents and recreation users of the Kaskaskia River in the local area.	2.90 (n=217)	0.85	2.80 (n=211)	0.76

¹Rated on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.

Table A23. Response rate among Lake Shelbyville visitor onsite survey respondents.

	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
Onsite	895		138		178		1030		175	
Nonresponse	115		22		79		144		60	
Unusable	6		0		2		5		0	
Effective sample	889		138		176		1025		175	
Response rate	774	87.1	116	84.1	97	55.1	881	86.0	105	60.0

Table A24. Response rate among Lake Shelbyville visitor and marina member mail survey respondents.

	Summer 2003		Summer 2004		Marina Members	
	n	%	n	%	n	%
Initial mailing	379		481		502	
Undeliverable	7		13		6	
Unusable	0		2		7	
Effective sample	372		446		489	
Response rate	176	47.3	284	60.9	227	46.4

Table A25. Demographic characteristics among Lake Shelbyville visitor onsite and marina member mail survey respondents.

Demographic characteristic	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004		Marina Members	
	n	%	n	%	n	%	n	%	n	%	n	%
Age in years	n = 712; M = 43.58		n = 70; M = 46.09		n = 69; M = 48.99		n = 768; M = 46.07;		n = 90; M = 58.89		n = 213; M = 54.03	
18 – 30	136	19.1	14	20.0	8	11.6	119	15.5	6	6.7	3	1.4
31 – 40	169	23.7	18	25.7	15	21.7	143	18.6	6	6.7	17	8.0
41 – 50	199	27.9	7	30.0	11	15.9	221	28.8	7	7.8	60	28.2
51 – 60	100	14.0	14	20.0	16	23.2	153	19.9	23	25.6	74	34.7
61 – 70	78	11.0	14	20.0	16	23.2	101	13.2	32	35.6	43	20.2
>71	30	4.2	3	4.3	3	4.3	31	4.0	16	17.8	16	7.5
Total	712	99.9	70	100.0	69	99.9 ¹	768	100	90	100.2 ¹	213	100.0
Education level	n = 765		n = 109		n = 91		n = 860		n = 102		n = 223	
Eighth grade	10	1.3	2	1.8	1	1.1	9	1.0	1	1	0	0.0
High school/GED	254	33.2	27	24.8	32	35.2	275	32.0	19	18.6	24	10.8
Tech school	48	6.3	13	11.9	8	8.8	39	4.5	7	6.9	18	8.1
Some college	210	27.5	22	20.2	28	30.8	210	24.4	18	17.6	70	31.4
College degree	192	25.1	32	29.4	13	14.3	252	29.3	51	50.0	64	28.7
Advanced degree	51	6.7	13	11.9	9	9.9	75	8.7	6	5.9	47	21.1
Total	76	100.1	109	100.0	91	100.0	860	99.9 ¹	102	100.0	223	100.0
Ethnicity	n = 360		n = 96		n = 30		n = 840		n = 88		n = 102	
Not Hispanic or Latino	345	95.8	90	93.8	30	100.0	828	98.6	88	100.0	1	1.0
Hispanic or Latino	15	4.2	6	6.3	0	0.0	12	1.4	0	0.0	101	99.0
Total	360	100.0	96	100.0	30	100.0	840	100	88	100.0	102	100.0
	n = 770		n = 112		n = 91		n = 882		n = 103		n = 222	

Demographic characteristic	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004		Marina Members	
	n	%	n	%	n	%	n	%	n	%	n	%
Race²												
White	725	94.2	104	92.9	90	98.9	830	94.1	97	94.2	220	99.10
American Indian or Alaska Native	25	3.2	2	1.8	0	0.0	25	2.8	1	1.0	2	0.90
Black or African American	12	1.6	2	1.8	1	1.1	8	0.9	5	4.9	0	0.0
Other	5	0.6	3	2.7	0	0.0	7	0.8	0	0.0	2	0.90
Asian	3	0.4	1	0.9	0	0.0	11	1.2	0	0.0	0	0.0
Native Hawaiian or other Pacific Islander	0	0	0	0.0	0	0.0	1	0.1	0	0.0	0	0.0
Total	770	100.0	112	100.1 ²	91	100.0	882	99.9 ¹	103	100.1 ²	222	100.90
Language speak most of time	n = 770		n = 114		n = 90		n =871		n=104		n = 223	
English	766	99.5	110	96.5	90	100.0	865	99.3	104	100.0	223	100.0
Other	2	0.3	2	1.8	0	0.0	0	0	0	0.0	0	0.0
Spanish	2	0.3	2	1.8	0	0.0	6	0.7	0	0.0	0	0.0
Total	770	100.1	114	100.0	90	100.0	871	100	104	100.0	223	100.0
Language read most of the time	n = 769		n = 113		n = 91		n =866		n=103		n = 222	
English	766	99.6	108	95.6	91	100.0	862	99.5	103	100.0	222	100.0
Other	2	0.3	3	2.7	0	0.0	0	0	0	0.0	0	0.0
Spanish	1	0.1	2	1.8	0	0.01	4	0.5	0	0.0	0	0.0
Total	769	100.0	113	100.0	91	100.0	866	100	103	100.0	222	100.0
Income (before taxes)	n = 670		n = 78		n = 74		n =675		n=46		n = 193	
Less than \$5,000	16	2.4	2	2.6	0	0.0	7	1.0	0	0.0	0	0.0
\$5,000-9,999	5	0.7	0	0.0	0	0.0	3	0.4	0	0.0	0	0.0
\$10,000-14,999	10	1.5	3	3.8	1	1.4	7	1.0	0	0.0	0	0.0
\$15,000-24,999	82	12.2	2	2.6	4	5.4	46	6.8	5	10.9	3	1.6
\$25,000-34,999	95	14.2	14	17.9	18	24.3	43	6.4	7	15.2	6	3.1
\$35,000-49,999	99	14.8	10	12.8	10	13.5	102	15.1	11	23.9	20	10.4
\$50,000-74,999	197	29.4	29	37.2	23	31.1	213	31.6	15	32.6	43	22.3
\$75,000-99,999	103	15.4	16	20.5	9	12.2	140	20.7	5	10.9	48	24.9
\$100,000-124,999	37	5.5	2	2.6	5	6.8	55	8.1	3	6.5	26	13.5
\$125,000-149,000	11	1.6	0	0.0	2	2.7	24	3.6	0	0.0	13	6.7
\$150,000-174,000	5	0.7	0	0.0	2	2.7	17	2.5	0	0.0	13	6.7
	10	1.5	0	0.0	0	0.0	18	2.7	0	0.0	21	10.9

Demographic characteristic	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004		Marina Members	
	n	%	n	%	n	%	n	%	n	%	n	%
\$175,000 or more												
Total	670	99.9	78	100.0	74	100.0	675	99.9 ¹	46	100.0	193	100.0
Gender	n = 766		n = 98		n = 88		n = 869		n=101		n = 221	
Male	404	52.7	72	73.5	69	78.4	562	64.7	54	53.5	175	79.2
Female	362	47.3	26	26.5	19	21.6	307	35.3	47	46.5	46	20.8
Total	766	100.0	98	100.0	88	100.0	869	100	101	100.0	221	100.0

¹ Does not equal 100 due to rounding.

² Respondents were able to check all applicable races.

Table A26. Past visitation of Lake Shelbyville visitor onsite survey respondents.

Past Visitation	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
First visitation	n = 774		n = 112		n = 97		n = 878		n = 101	
No	675	87.2	76	67.9	89	91.8	799	91.0	71	70.3
Yes	99	12.8	36	32.1	8	8.2	79	9.0	30	29.7
Total	774	100.0	112	100.0	97	100.0	878	100	101	100.0
Total times visited	n=404, \bar{M} =30.60, S.D.=35.79		n=26, \bar{M} =11.81, S.D.=20.45		n=55, \bar{M} =24.67, S.D.=32.16		n=516, \bar{M} =39.39, S.D.=39.58		**	
1	3	0.7	3	11.5	1	1.8	0	0.0		
2	46	11.4	1	3.8	10	18.2	47	9.1		
3	27	6.7	6	23.1	7	12.7	39	7.6		
4	33	8.2	1	3.8	0	0.0	22	4.3		
5	23	5.7	3	11.5	3	5.5	28	5.4		
6-10	61	15.1	8	30.8	8	14.5	68	13.2		
11-15	30	7.4	1	3.8	4	7.3	33	6.4		
16-20	40	9.9	1	3.8	7	12.7	37	7.2		
21-25	11	2.7	0	0.0	2	3.6	22	4.3		
26-50	46	11.4	1	3.8	5	9.1	69	13.4		
51-100	44	10.9	1	3.8	8	14.5	60	11.6		
>100	40	9.9	0	0.0	0	0.0	91	17.6		
Total	404	100.0	26	100.0	55	99.9 ¹	516	100.1 ¹		
Times in past 12 months	n=563, \bar{M} =9.17, S.D.=14.81		n=51, \bar{M} =8.63, S.D.=19.73		n=72, \bar{M} =12.54, S.D.=22.42		n=708, \bar{M} =11.41, S.D.=19.25		n=26, \bar{M} =6.50, S.D.=5.38	
1	112	19.9	11	21.6	15	20.8	156	22.0	4	15.4
2	98	17.4	11	21.6	14	19.4	113	16.0	2	11.5
3	67	11.9	13	25.5	9	12.5	52	7.3	4	15.4
4	53	9.4	2	3.9	6	8.3	48	6.8	4	15.4
5	23	4.1	4	7.8	1	1.4	47	6.6	0	0.0
6-10	93	16.5	3	5.9	7	9.7	114	16.1	5	19.2
11-15	33	5.9	1	2.0	7	9.7	47	6.6	5	19.2
16-20	22	3.9	3	5.9	2	2.8	35	4.9	1	3.8
21-25	11	2.0	0	0.0	0	0.0	19	2.7	0	0.0
26-50	41	7.3	1	2.0	7	9.7	53	7.5	0	0.0
51-75	4	0.7	0	0.0	1	1.4	3	0.4	0	0.0
76-100	2	0.4	2	3.9	3	4.2	9	1.3	0	0.0
>100	4	0.7	0	0.0	0	0.0	12	1.7	0	0.0

Total	563	100.1 ¹	51	100.0	72	99.9 ¹	708	99.9 ¹	26	99.9 ¹
Years visited	n=616, \bar{M} =15.25, S.D.=10.37		n=59, \bar{M} =13.34, S.D.=10.00		n=68, \bar{M} =15.79, S.D.=10.52		n=728, \bar{M} =16.43, S.D.=10.95		n=58, \bar{M} =14.24, S.D.=7.90	
1	30	4.9	1	1.7	1	1.5	35	4.8	1	1.7
2	42	6.8	5	8.5	5	7.4	34	4.7	0	0.0
3	37	6.0	4	6.8	4	5.9	31	4.3	2	3.4
4	29	4.7	3	5.1	1	1.5	33	4.5	0	0.0
5	37	6.0	7	11.9	6	8.8	44	6.0	8	13.8
6-10	79	12.8	11	18.6	12	17.6	124	17.0	17	29.3
11-15	81	13.1	9	15.3	7	10.3	76	10.4	11	19.0
16-20	111	18.0	7	11.9	11	16.2	116	15.9	11	19.0
21-25	57	9.3	4	6.8	8	11.8	63	8.7	2	3.4
26-30	58	9.4	4	6.8	4	5.9	96	13.2	6	10.3
31-35	49	8.0	4	6.8	9	13.2	66	9.1	0	0.0
>35	6	1.0	0	0.0	0	0.0	10	1.4	0	0.0
Total	616	100.0	59	100.0	68	100.0	728	100	58	99.9 ¹

¹ Does not equal 100 due to rounding.

** Data not reported due to low response numbers.

Table A27. Main recreational activity among Lake Shelbyville visitor onsite survey respondents.

	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004	
	n	%	n	%	n	%	n	%	n	%
Main recreational activity	n = 774		n = 115		n = 73		n = 884		n = 105	
Fishing	202	26.1	44	38.3	42	43.3	307	34.7	43	41.0
Camping	174	22.5	33	28.7	17	17.5	218	24.7	52	49.5
Swimming	120	15.5	1	0.9	2	2.1	45	5.1	0	0.0
Motorboating	105	13.6	1	0.9	11	11.3	153	17.3	3	2.9
Relaxing/Stress Reduction	62	8.0	9	7.8	6	6.2	65	7.4	3	2.9
Sunbathing	36	4.7	0	0.0	0	0.0	6	0.7	0	0.0
Picnicking	17	2.2	4	3.5	2	2.1	4	0.5	0	0.0
Walking/Hiking	11	1.4	1	0.9	1	1.0	7	0.8	1	1.0
Jet Skiing	10	1.3	0	0.0	1	1.0	19	2.1	0	0.0
Waterskiing	9	1.2	0	0.0	0	0.0	14	1.6	0	0.0
Other	7	0.9	1	0.9	3	3.1	18	2.0	2	1.9
Bicycling	5	0.6	2	1.7	3	3.1	7	0.8	0	0.0
Driving for Pleasure	4	0.5	16	13.9	4	4.1	4	0.5	1	1.0
Observing/Photographing Wildlife or Nature	4	0.5	3	2.6	2	2.1	9	1.0	0	0.0
Horseback Riding	3	0.4	0	0.0	0	0.0	1	0.1	0	0.0
Using Playgrounds	2	0.3	0	0.0	0	0.0	1	0.1	0	0.0
Canoeing/Kayaking	1	0.1	0	0.0	0	0.0	3	0.3	0	0.0
Houseboating	1	0.1	0	0.0	0	0.0	1	0.1	0	0.0
Hunting	1	0.1	0	0.0	2	2.1	0	0.0	0	0.0
Sailing	0	0.0	0	0.0	0	0.0	1	0.1	0	0.0
Volleyball	0	0.0	0	0.0	1	1.0	1	0.1	0	0.0
Windsurfing/Sail Boarding	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Table A28. Main recreational activity among Lake Shelbyville visitor mail survey respondents.

	Summer 2003		Summer 2004	
	n	%	n	%
Main recreational activity	n=176		n=280	
Camping	66	37.5	113	40.4
Fishing	48	27.3	83	29.6
Motor boating	24	13.6	56	20.0
Relaxing/stress reduction	13	7.4	13	4.6
Swimming	11	6.3	2	0.7
Jet skiing	4	2.3	3	1.1
Sunbathing	3	1.7	0	0.0
Water skiing	2	1.1	3	1.1
Picnicking	2	1.1	0	0.0
Bicycling	1	0.6	1	0.4
Canoeing/kayaking	1	0.6	1	0.4
Horseback riding	1	0.6	0	0.0
Walking/hiking	0	0.0	2	0.7
Sailing	0	0.0	1	0.4
Observing/photographing wildlife or nature	0	0.0	1	0.4
Using playgrounds	0	0.0	1	0.4

Table A29. Reported importance and attainment of experiences among Lake Shelbyville visitor and marina member mail survey respondents.

Experience	Summer 2003						Summer 2004						Marina Members					
	Importance		Attainment		Attainment		Importance		Attainment		Attainment		Importance		Attainment		Attainment	
	M ^a	S.D.	M ^b	S.D.	M ^c	S.D.	M ^a	S.D.	M ^b	S.D.	M ^c	S.D.	M ^a	S.D.	M ^b	S.D.	M ^c	S.D.
To enjoy the scenery of the lake	4.37	0.81	3.56	0.68	3.60	0.64	4.42	0.70	3.54	0.68	3.54	0.67	4.61	0.66	3.65	0.58	3.66	0.57
	n=169		n=144		n=137		n=267		n=222		n=219		n=214		n=193		n=190	
To do something with my family	4.33	1.03	3.75	0.57	3.81	0.49	4.35	0.95	3.63	0.74	3.77	0.49	4.39	0.84	3.68	0.54	3.71	0.53
	n=171		n=141		n=124		n=263		n=208		n=193		n=218		n=186		n=177	
To get away from the usual demands of life	4.27	0.88	3.50	0.64	3.52	0.60	4.33	0.85	3.55	0.66	3.58	0.60	4.34	0.86	3.42	0.66	3.44	0.63
	n=169		n=134		n=126		n=266		n=211		n=202		n=214		n=186		n=178	
To relax physically	4.19	0.94	3.47	0.61	3.52	0.56	4.18	0.86	3.45	0.68	3.46	0.66	4.27	0.87	3.41	0.61	3.44	0.59
	n=167		n=133		n=122		n=267		n=206		n=196		n=215		n=184		n=175	
To experience nature	3.96	0.97	3.31	0.72	3.37	0.67	3.95	0.96	3.39	0.74	3.45	0.65	4.00	0.95	3.39	0.67	3.43	0.64
	n=163		n=128		n=111		n=261		n=198		n=184		n=209		n=172		n=150	
To be with people who enjoy same things I do	3.91	1.06	3.54	0.66	3.62	0.61	4.09	0.92	3.56	0.71	3.62	0.63	4.05	0.97	3.51	0.62	3.56	0.59
	n=169		n=126		n=108		n=266		n=199		n=183		n=211		n=169		n=147	
To be close to nature	3.90	0.95	3.35	0.71	3.41	0.67	3.96	0.96	3.39	0.74	3.48	0.63	4.01	0.94	3.39	0.64	3.45	0.61
	n=166		n=123		n=108		n=265		n=194		n=174		n=209		n=167		n=150	
To use my own equipment	3.87	1.06	3.79	0.51	3.82	0.46	3.97	1.00	3.75	0.56	3.81	0.48	4.25	1.00	3.81	0.47	3.85	0.42
	n=165		n=112		n=97		n=262		n=191		n=175		n=215		n=180		n=168	
To be with members of my group	3.85	1.12	3.64	0.62	3.72	0.56	4.01	1.01	3.46	0.87	3.69	0.55	3.84	0.95	3.42	0.69	3.55	0.56
	n=164		n=118		n=96		n=259		n=184		n=159		n=215		n=162		n=132	
To feel healthier	3.78	0.99	3.17	0.69	3.20	0.66	3.74	0.95	3.11	0.87	3.24	0.76	3.90	0.95	3.25	0.66	3.29	0.64
	n=166		n=110		n=95		n=165		n=171		n=146		n=211		n=159		n=137	
To experience solitude	3.53	1.13	3.10	0.69	3.18	0.66	3.47	1.12	2.83	1.05	3.10	0.91	3.71	1.13	3.23	0.71	3.30	0.67
	n=165		n=97		n=72		n=260		n=152		n=113		n=212		n=158		n=121	
To participate in recreational activities	3.51	1.23	3.44	0.72	3.65	0.53	3.78	1.04	3.24	0.95	3.46	0.72	3.85	1.04	3.35	0.72	3.50	0.62
	n=167		n=119		n=83		n=263		n=186		n=156		n=213		n=167		n=132	
To get exercise	3.42	0.97	3.17	0.70	3.24	0.68	3.44	1.00	2.90	0.96	3.17	0.77	3.27	1.16	3.05	0.72	3.22	0.65
	n=166		n=102		n=72		n=259		n=156		n=118		n=207		n=134		n=91	
To have a wilderness experience	3.42	1.09	3.27	0.77	3.43	0.67	3.53	1.04	3.14	0.89	3.28	0.76	3.55	1.10	3.23	0.70	3.33	0.64
	n=164		n=105		n=72		n=259		n=166		n=129		n=211		n=155		n=109	

To think about my personal values	3.34	1.01	3.12	0.68	3.23	0.58	3.41	1.05	3.06	0.93	3.33	0.66	3.52	1.04	3.20	0.71	3.29	0.64
	n=161		n=92		n=64		n=257		n=145		n=104		n=207		n=138		n=103	
To be away from other people	3.32	1.10	3.10	0.77	3.32	0.69	3.27	1.23	2.71	1.06	2.98	0.92	3.44	1.15	3.14	0.71	3.25	0.64
	n=168		n=98		n=57		n=258		n=153		n=95		n=210		n=158		n=106	
To be on my own	3.28	1.22	3.26	0.75	3.35	0.65	3.29	1.21	3.10	0.95	3.30	0.83	3.88	1.03	3.25	0.79	3.34	0.75
	n=167		n=97		n=63		n=258		n=156		n=105		n=216		n=166		n=139	
To have thrills and excitement	3.28	1.01	3.16	0.72	3.29	0.65	3.44	1.05	2.92	0.99	3.15	0.87	3.27	1.09	2.98	0.74	3.12	0.68
	n=164		n=95		n=58		n=256		n=152		n=113		n=209		n=138		n=81	
To test my skills and abilities	3.26	1.06	3.12	0.73	3.33	0.58	3.32	1.10	2.93	1.00	3.17	0.79	3.39	1.03	3.13	0.70	3.24	0.65
	n=165		n=90		n=54		n=258		n=150		n=112		n=208		n=137		n=93	
To experience new and different things	3.21	0.97	2.92	0.75	3.04	0.67	3.30	1.04	2.64	1.07	2.85	0.96	3.38	0.98	2.93	0.65	3.00	0.60
	n=164		n=89		n=54		n=262		n=143		n=102		n=207		n=138		n=94	
To challenge myself	3.14	0.96	3.05	0.84	3.40	0.67	3.20	1.10	2.70	1.04	3.04	0.81	3.15	1.03	2.94	0.73	3.17	0.62
	n=163		n=81		n=40		n=261		n=141		n=90		n=209		n=123		n=60	
To share my skill and knowledge with others	2.93	0.93	2.95	0.77	3.24	0.66	3.05	1.02	2.60	1.07	3.16	0.68	3.07	1.01	2.90	0.76	3.14	0.63
	n=164		n=78		n=33		n=261		n=136		n=69		n=209		n=125		n=59	
To learn about the natural history of the area	2.83	0.95	2.73	0.78	2.88	0.67	2.94	1.06	2.28	1.17	2.78	0.99	2.99	0.90	2.80	0.73	2.92	0.66
	n=166		n=74		n=25		n=257		n=127		n=68		n=207		n=126		n=51	
To meet new people	2.74	1.08	2.92	0.72	3.16	0.60	3.04	1.03	2.78	1.07	3.15	0.84	3.28	1.06	3.02	0.76	3.25	0.69
	n=167		n=81		n=37		n=263		n=131		n=71		n=213		n=141		n=84	
To learn about the cultural history of the area	2.65	0.95	2.73	0.77	2.89	0.57	2.78	1.02	2.15	1.10	2.76	0.87	2.80	0.89	2.72	0.73	2.87	0.62
	n=164		n=75		n=19		n=257		n=120		n=50		n=209		n=120		n=38	
To be creative by doing something such as sketching, painting, taking photographs	2.52	0.99	2.77	0.84	3.07	0.80	2.50	1.01	2.13	1.22	2.89	1.09	2.57	1.12	2.92	0.80	3.20	0.72
	n=162		n=71		n=15		n=254		n=108		n=27		n=209		n=117		n=40	

^aImportance rated on a scale of 1 to 5, where 1=very unimportant and 5=very important.

^bAttainment rated by all respondents on a scale of 2 to 4, where 1=did not attain and 4=totally attained.

^cAttainment rated by those respondents indicating benefit was important (4 to 5), where 1=did not attain and 4=totally attained.

Table A30. Factor loadings for experience attribute items among Lake Shelbyville survey respondents, summer 2003.

Items	Recreate in natural environment	Achievement	Autonomy	Learning	Recreating with Similar People
Experience nature	.82				
Be close to nature	.75				
Have a wilderness experience	.68				
Enjoy the scenery of the lake	.64				
Feel healthier	.62				
Experience new and different things	.54				
Participate in recreation activity	.51				
Get exercise	.43				
Test my skills and abilities		.79			
Have thrills and excitement		.75			
Challenge myself		.74			
Share skill and knowledge with others		.65			
Experience solitude			.83		
Be away from other people			.83		
Be on my own			.79		
Use my own equipment			.57		
Learn cultural history of the area				.83	
Be creative by doing something such as sketching, painting, taking photographs				.75	
Learn natural history of the area				.72	
Meet new people				.63	
Be with members of my group					.82
Be with people who enjoy the same things as I do					.80
Do something with my family					.66
Eigen value	3.69	2.88	2.65	2.63	2.51
Alpha (α)	.76	.79	.71	.77	.76
Variance explained (%)	16.04	12.53	11.52	11.42	10.92

Table A31. Factor loadings for experience attribute items among Lake Shelbyville marina member mail survey respondents.

Items	Factors				
	Recreate in natural environment	Autonomy	Recreating with similar people	Achievement	Learn
Participate in recreational activities	.74				
To enjoy the scenery of the lake	.70				
Experience nature	.63				
Do something with my family	.45				
Be on my own		.79			
Use my own equipment		.70			
Experience solitude		.68			
Be away from other people		.64			
Get away from the usual demands of life		.64			
Relax physically		.58			
Be with people who enjoy some things as I do			.82		
Be with members of my group			.76		
Meet new people			.64		
Challenge myself				.87	
Share my skill and knowledge with others				.79	
To test my skills and abilities				.67	
Have thrills and excitement				.64	
Learn about the natural history of the area					.92
Learn about the cultural history of the area					.92
Experience new and different things					.59
Scale mean	4.22	3.99	3.72	3.22	3.07
Variance explained (%)	11.00	15.69	11.90	13.89	12.62
Alpha (α)	0.70	0.81	0.83	0.80	0.72
Total variance explained (%)	65.10				

Table A32. Percent of reported attained experiences among Lake Shelbyville visitor survey respondents based on lake sections, summer 2003.

Experience Factors	Lake Shelbyville Section							
	One	Two	Three	Four	Five	Six	Seven	Total
Recreate in natural environment	32.3 (n=159)	19.1 (n=94)	7.9 (n=39)	6.1 (n=30)	13.2 (n=65)	4.3 (n=21)	17.2 (n=85)	100 (n=493)
Achievement	33.1 (n=57)	20.3 (n=35)	11.0 (n=19)	7.6 (n=13)	10.5 (n=18)	4.1 (n=7)	13.4 (n=23)	100 (n=172)
Autonomy	3.9 (n=82)	18.0 (n=38)	7.1 (n=15)	3.8 (n=8)	12.3 (n=26)	3.8 (n=8)	16.1 (n=34)	100 (n=211)
Learning	40.0 (n=14)	14.3 (n=5)	2.9 (n=1)	2.9 (n=1)	17.1 (n=6)	0 (n=0)	22.9 (n=8)	100 (n=35)
Recreate with similar people	35.5 (n=99)	22.6 (n=63)	6.5 (n=18)	5.0 (n=14)	14.3 (n=40)	2.2 (n=6)	14.0 (n=39)	100 (n=279)

Table A33. Percent of reported attained experiences among Lake Shelbyville visitor survey respondents based on lake sections, summer 2004.

Experience Factors	Lake Shelbyville Section								
	One	Two	Three	Four	Five	Six	Seven	Eight	Total
Recreate in natural environment	23.5 (n=237)	21.5 (n=217)	6.8 (n=68)	2.3 (n=23)	16.6 (n=167)	2.3 (n=23)	21.4 (n=216)	5.6 (n=56)	(n=1007)
Achievement	26.7 (n=96)	20.6 (n=74)	7.2 (n=26)	4.2 (n=15)	12.5 (n=45)	3.9 (n=14)	16.7 (n=60)	8.3 (n=30)	(n=360)
Autonomy	24.2 (n=97)	20.2 (n=81)	7.7 (n=31)	2.0 (n=8)	16.7 (n=67)	1.7 (n=7)	22.2 (n=89)	5.2 (n=21)	(n=401)
Learning	29.5 (n=44)	19.5 (n=29)	3.4 (n=5)	0.7 (n=1)	16.1 (n=24)	0.7 (n=1)	26.2 (n=39)	4.0 (n=6)	(n=149)
Recreate with similar people	25.4 (n=119)	18.4 (n=86)	4.9 (n=23)	1.7 (n=8)	16.7 (n=78)	1.7 (n=8)	26.7 (n=125)	4.5 (n=21)	(n=468)

Table A34. Number of reported attained experiences among Lake Shelbyville marina member mail survey respondents based on lake sections.

Experience Factors	Lake Shelbyville Section								
	One	Two	Three	Four	Five	Six	Seven	Eight	Total
Recreate in natural areas	22.4 (n=118)	25.6 (n=135)	15.7 (n=83)	4.6 (n=24)	5.9 (n=31)	2.8 (n=15)	11.0 (n=58)	12.0 (n=63)	(n=527)
Escape/ autonomy	26.0 (n=151)	22.8 (n=132)	16.6 (n=96)	3.6 (n=21)	2.9 (n=17)	2.2 (n=13)	10.5 (n=61)	15.3 (n=89)	(n=580)
Social	28.8 (n=67)	24.0 (n=56)	15.0 (n=35)	2.6 (n=6)	4.7 (n=11)	3.0 (n=7)	10.7 (n=25)	11.2 (n=26)	(n=233)
Achieve	27.1 (n=51)	19.1 (n=36)	13.3 (n=25)	3.7 (n=7)	5.9 (n=11)	5.9 (n=11)	13.3 (n=25)	11.7 (n=22)	(n=188)
Learn	27.2 (n=34)	20.0 (n=25)	10.4 (n=13)	5.6 (n=7)	5.6 (n=7)	4.8 (n=6)	12.8 (n=16)	13.6 (n=17)	(n=125)

Table A35. Perceived crowding and preferences among Lake Shelbyville visitor and marina member mail survey respondents.

Perceived crowding	Summer 2003				Summer 2004				Marina Member			
	<u>M</u> ¹	S.D.	% did not visit	% no expectation	<u>M</u> ¹	S.D.	% did not visit	% no expectation	<u>M</u> ¹	S.D.	% did not visit	% no expectation
Campsites	3.24 (n=173)	1.09	28.9	1.2	3.25 (n=271)	0.87	28.0	1.1	3.44 (n=214)	0.77	59.8	2.3
Boat launches	3.12 (n=174)	0.95	31.0	0.6	3.13 (n=274)	0.96	25.5	1.8	3.41 (n=217)	0.82	28.6	3.2
Picnic areas	2.46 (n=172)	1.18	60.5	4.1	2.74 (n=270)	0.84	60.0	3.0	2.91 (n=213)	0.77	60.6	3.3
Trails	2.42 (n=111)	1.08	64.2	2.9	2.61 (n=269)	0.79	62.1	2.2	2.63 (n=213)	0.85	62.9	1.9
Beaches	2.41 (n=172)	1.06	43.6	3.5	2.55 (n=272)	0.94	48.5	2.2	2.86 (n=215)	0.66	58.1	0.0
Crowding preferences	<u>M</u> ¹	S.D.	% did not visit	% no preference	<u>M</u> ¹	S.D.	% did not visit	% no preference	<u>M</u> ¹	S.D.	% did not visit	% no preference
Boat launches	3.34 (n=152)	1.18	32.2	3.3	3.42 (n=233)	0.97	27.0	8.2	3.61 (n=177)	0.89	31.6	7.3
Campsites	3.30 (n=151)	1.26	32.7	4.6	3.41 (n=232)	0.99	27.6	4.7	3.47 (n=176)	0.88	60.2	6.3
Picnic areas	2.86 (n=153)	1.32	57.6	5.3	3.09 (n=232)	0.85	46.6	4.3	3.28 (n=175)	0.70	63.4	8.0
Trails	2.83 (n=152)	1.14	65.1	2.6	3.00 (n=227)	0.70	56.4	5.3	3.10 (n=174)	0.57	64.4	6.3
Beaches	2.73 (n=152)	1.19	44.7	5.3	2.88 (n=272)	0.76	57.5	5.3	3.17 (n=176)	0.75	61.4	5.7

¹Rated on a scale of 1 to 5, where 1=far less than expected, 3=as expected and 5=far more than expected.

²Rated on a scale of 1 to 5, where 1=far less than preferred, 3=as preferred and 5=far more than preferred.

Table A36. Reported affect of overall enjoyment from the number of people at the lake among Lake Shelbyville visitor and marina member mail survey respondents.

Affect of overall enjoyment from the number of people at the lake	Summer 2003		Summer 2004		Marina Members	
	Frequency (n=175)	%	Frequency (n=280)	%	Frequency (n=214)	%
No effect on my enjoyment	97	55.4	145	51.8	25	11.7
Detracted a little from my enjoyment	32	18.3	57	20.4	24	11.2
Added a lot to my enjoyment	22	12.6	37	13.2	108	50.5
Added a little to my enjoyment	17	9.7	25	8.9	49	22.9
Detracted a lot from my enjoyment	7	4.0	16	5.7	8	3.7

Table A37. Place dependence among Lake Shelbyville visitor onsite and marina member mail survey respondents.

Scale items	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004		Marina Members	
	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹			S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.
This lake is the best place for what I like to do.	3.52 n=756	0.98	3.58 (n=74)	0.99	3.72 (n=85)	0.87	3.63 n=845	1.02	3.23 (n=62)	1.03	4.00 (n=223)	0.91
Doing what I do at this lake is more important to me than doing it any other place.	3.49 n=761	0.99	3.42 (n=79)	1.07	3.76 (n=87)	0.72	3.63 n=851	0.98	3.30 (n=63)	1.06	4.05 (n=226)	0.95
I get more satisfaction out of visiting this lake than any other.	3.30 n=750	1.09	3.28 (n=75)	1.07	3.64 (n=84)	0.95	3.40 n=835	1.04	2.93 (n=61)	0.98	3.46 (n=222)	1.04
I wouldn't substitute any other area for doing the types of things I do at this lake.	3.25 n=760	1.08	3.39 (n=79)	0.98	3.47 (n=86)	1.00	3.30 n=850	1.09	2.94 (n=63)	0.97	3.75 (n=225)	1.07
No other place can compare to this lake.	3.03 n=735	1.07	3.20 (n=77)	1.06	3.55 (n=84)	0.97	3.13 n=818	1.11	2.75 (n=61)	0.87	3.06 (n=220)	1.11
The things I do at this lake I would enjoy doing just as much at a similar site. ²	2.35 n=762	0.99	2.37 (n=78)	0.97	3.41 (n=87)	1.06	2.43 n=851	1.04	2.51 (n=63)	0.86	2.73 (n=225)	1.09
Scale	3.16	0.80	3.22	0.76	3.61	0.66	3.25		2.94	0.75	3.50	0.79
Alpha (α)	0.87		0.80		0.71		0.85		0.88		0.85	

¹Rated on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.

² Reverse coded.

Table A38. Place identity among Lake Shelbyville visitor onsite and marina member mail survey respondents.

Scale items	Summer 2003		Fall 2003		Spring 2004		Summer 2004		Fall 2004		Marina Members	
	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.
This lake means a lot to me.	3.79 (n=762)	0.98	3.71 (n=75)	0.87	3.98 (n=85)	0.77	3.98 (n=853)	0.87	3.70 (n=61)	0.82	4.35 (n=226)	0.71
I am very attached to this lake.	3.43 (n=764)	1.03	3.43 (n=74)	0.95	3.71 (n=65)	0.96	3.59 (n=846)	0.99	3.49 (n=61)	0.98	4.00 (n=227)	0.94
This lake is very special to me.	3.50 (n=763)	1.00	3.57 (n=74)	0.94	3.75 (n=85)	0.84	3.65 (n=847)	0.98	3.60 (n=60)	0.92	4.05 (n=226)	0.89
I identify strongly with this lake.	3.37 (n=761)	0.99	3.47 (n=73)	0.97	3.68 (n=87)	0.87	3.55 (n=839)	0.97	3.12 (n=59)	0.97	3.93 (n=224)	0.94
Visiting this lake says a lot about who I am.	3.30 (n=753)	1.01	3.42 (n=73)	0.93	3.76 (n=88)	0.82	3.46 (n=835)	0.98	3.10 (n=59)	0.96	3.70 (n=224)	1.00
I feel this lake is a part of me.	3.19 (n=758)	1.04	3.31 (n=75)	0.94	3.58 (n=85)	0.94	3.30 (n=846)	1.03	3.18 (n=60)	0.93	3.76 (n=222)	1.00
Scale	3.43	0.90	3.45	0.87	3.74	0.73	3.60		3.39	0.81	3.97	0.81
Alpha (α)	0.95		0.97		0.93		0.93		0.92		0.95	

¹Rated on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.

Table A39. Correlations between place attachment and experience use history items among Lake Shelbyville visitors, summer 2003.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.69**	.35**	.17**	.23**
Place dependence		1	.24**	.12**	.17**
Total visits			1	.49**	.12**
Visits last 12 months				1	.53**
Number of years visiting					1

**Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A40. Correlations between place attachment and experience use history items among Lake Shelbyville visitors, fall 2003.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.73**	.25	.33*	.26
Place dependence		1	-.11	.09	.24
Total visits			1	.91**	.67**
Visits last 12 months				1	.27
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A41. Correlations between place attachment and experience use history items among Lake Shelbyville visitors, spring 2004.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.67**	.05	.38**	-.07
Place dependence		1	.12	.11	.01
Total visits			1	.36**	.49**
Visits last 12 months				1	.19
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A42. Correlations between place attachment and experience use history items among Lake Shelbyville visitors, summer 2004.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.59**	.36**	.24**	.22**
Place dependence		1	.17**	.09*	.16**
Total visits			1	.52**	.05
Visits last 12 months				1	.53**
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A42. Correlations between place attachment and experience use history items among Lake Shelbyville visitors, summer 2004.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.59**	.36**	.24**	.22**
Place dependence		1	.17**	.09*	.05
Total visits			1	.52**	.53**
Visits last 12 months				1	.16**
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A43. Correlations between place attachment and experience use history items among Lake Shelbyville visitors, fall 2004.

Variables	Place identity	Place dependence	Total visits	Visits last 12 months	Number of years visiting
Place identity	1	.77**	.68	.33	.61**
Place dependence		1	.67	.15	.40**
Total visits			1	.78**	.00
Visits last 12 months				1	.02
Number of years visiting					1

*Indicates significant correlation at .05 level; **Indicates significant correlation at .01 level.

Table A44. Perceived characteristics about Lake Shelbyville and the Kaskaskia River among visitor and marina member mail survey respondents.

	Summer 2003		Summer 2004		Marina Members	
	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.	<u>M</u> ¹	S.D.
This lake is important to the economy of its local area.	4.44 (n=170)	0.62	4.39 (n=265)	0.68	4.45 (n=218)	0.64
Recreational use of this lake is important to the economy of the local area.	4.41 (n=170)	0.65	4.39 (n=265)	0.63	4.43 (n=219)	0.67
The lake is inviting.	4.37 (n=169)	0.60	4.35 (n=266)	0.58	4.37 (n=218)	0.74
The area along and near the lake is safe.	3.84 (n=170)	0.75	3.90 (n=267)	0.69	3.96 (n=218)	0.64
The water quality of this lake is good.	3.78 (n=169)	0.81	3.94 (n=266)	0.65	3.66 (n=219)	0.91
Erosion of the lakeshore is a serious problem.	3.52 (n=168)	1.04	3.65 (n=263)	1.01	3.95 (n=217)	0.92
Commercial Navigation (barges) on the Kaskaskia River is important to the economy of the region.	2.86 (n=159)	0.85	3.04 (n=248)	0.90	2.81 (n=202)	1.01
There are many conflicts between local residents and recreation users of the Kaskaskia River in the local area.	2.82 (n=162)	0.65	2.80 (n=256)	0.68	2.70 (n=203)	0.79

¹Rated on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.

Appendix B- Carlyle Lake Map

