

US Army Corps of Engineers
Little Rock District
Little Rock, Arkansas

Recreational Carrying Capacity Study for Greers Ferry Lake, Arkansas

FINAL REPORT



Prepared by: Tetra Tech, Inc., Fairfax, Virginia
November 2001

**Final
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for Greers Ferry Lake, Arkansas**

Prepared for

**US Army Corps of Engineers
Little Rock District
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by

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Fairfax, Virginia
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1. Introduction

Purpose of the Study

The purpose of the Recreational Carrying Capacity Study at Greers Ferry Lake, Arkansas, was to gather information about recreation at the lake. Specifically, the purpose was to survey boaters and area residents about their perceptions and preferences concerning the following:

- The availability of recreational opportunities and facilities at the lake
- The quality of the recreational experience at the lake
- Environmental conditions at the lake
- Managerial issues at the lake

The study was conducted for the US Army Corps of Engineers, Little Rock District, Planning, Environmental, and Regulatory Division, Little Rock, Arkansas (henceforth referred to as “the Corps” or “Corps”).

Study Objectives

The study had four objectives:

1. Determine the impact that current lake use has on the quality of recreation, safety, and the environment.
2. Determine the effect that marinas, boat ramps, and commercial activities have on the carrying capacity and distribution of users on the lake.
3. Determine visitors’ perceptions of the effect that private boat docks and shoreline vegetation modification have on the lake.
4. Determine boaters’ perceptions of the resource, social, and managerial conditions of the lake.

Study Area

Greers Ferry Lake is in the foothills of the Ozark Mountains in north-central Arkansas, south of the Ozark Plateau and west of the Mississippi embayment. The area is generally wooded and rugged, and geological formations line the winding Little Red River. The prominent scenic topographic features of the area include oddly shaped buttes and ledge outcrops that rise above the river valley. The lake has an irregular shape with numerous arms and coves. It is split into two large sections connected by a 3½-mile stretch called the Narrows. North of the Narrows, the lake extends east and west in two relatively narrow and straight arms. South of the Narrows, it opens into a large open-water section and then continues east past some islands as it winds toward the site of the Greers Ferry dam. The surface area of the lake at conservation pool (elevation 461 feet above mean sea level) is 31,500 acres, and the shoreline of the lake at this elevation is 276 miles long.

The study was designed to gather responses from the entire population of boaters at Greers Ferry Lake, regardless of the location of their residence. Surveys were conducted at almost all boat ramps and marinas on the lake. At one park, South Fork, surveys were conducted on only one day.

The permanent residence location of the boaters surveyed was frequently listed as a city in Arkansas, but boaters also listed surrounding states as well as more distant states, such as Illinois, Rhode Island, Arizona, and California. Surveys were mailed to marina slip renters with a permanent address in Arkansas and to adjacent landowners whose addresses fell within approximately 1 mile of the lake. Boat counts were conducted on the entire lake.

Study Design

The study was designed to characterize boater use of Greers Ferry Lake during peak use periods. The study was limited, therefore, to the peak use season of the Memorial Day holiday weekend through the Fourth of July holiday period, which corresponded to May 26 through July 8 in 2001. The study consisted of three major parts: exit surveys of boaters at boat ramps and marinas on the lake, mailed surveys of adjacent landowners and marina slip renters, and boat counts.

Three surveys were created from existing Corps questionnaires approved for use by the U.S. Office of Management and Budget. The surveys were designed for boater exit surveys, for mailing to adjacent landowners, and for mailing to marina slip renters. The three questionnaires were very similar but differed slightly because they were tailored to the target audiences.

The study was patterned after similar studies done for other Corps projects, such as Beaver Lake in Arkansas and Lewisville Lake in Texas.

Boater Exit Surveys

Boater exit surveys were conducted at 14 developed parks and the Eden Isle marina, which is associated with the Eden Isle residential community but is not in a Corps park. One location, South Fork park, was determined to present a potential safety issue to interviewers assigned to it, and surveys were not conducted at the site after the first day of surveying. Boater exit surveys were conducted at the other 13 Corps parks on the main body of the lake throughout the study. Exit surveys were not conducted at the John F. Kennedy Park, which is off the main body of the lake; Salt Creek Park; or Sandy Beach Park, which is leased to the city of Heber Springs.

The schedule was designed to allow for conducting surveys at three marinas and two boat ramps each interview morning and afternoon, with different marinas and boat ramps being used in the mornings and afternoons (Appendix A). Interviews were initially conducted, therefore, at four boat ramps and six marinas each day. Eight¹ of the thirteen parks used for exit surveys have marinas and boat ramps, five² parks have boat ramps only, and Eden Isle has a marina. The schedule therefore permitted conducting surveys at all of the parks and Eden Isle marina every 3 days on average. Exit interviews were conducted on 7 holiday days (counting the period of July 4 through July 8 as holiday days), one non-holiday weekend, and four weekdays.

An attempt was made to conduct surveys at all of the survey locations equally. This was done because it was believed that different segments of the lake's boating population (e.g., fishers, skiers, and pleasure boaters) and people from different areas surrounding the lake would use different parks, and because it was appropriate to sample the entire boating population. Surveys were initially conducted during both mornings and afternoons. It was found that the morning surveys were very unproductive; after the Memorial Day weekend, therefore, surveys were

¹ Dam Site, Heber Springs, Shiloh, Narrows, Sugar Loaf, Fairfield Bay, Hill Creek, and Choctaw.

² Old Highway 25, Cherokee, Cove Creek, Devils Fork, and Mill Creek.

conducted only in the afternoon. Two days of early morning surveys were conducted late in the survey to ensure that the opinions of early morning fishers were included in the survey results.

An independent organization, the Survey Research Center of the University of Arkansas in Fayetteville, Arkansas, was enlisted to hire and train interviewers and to manage the overall boater exit survey effort. A Tetra Tech, Inc., staff member assisted the Survey Research Center staff.

Surveys were conducted using one of two approaches. In the first approach, the surveyor read the survey questions to the exiting boater and recorded the answers. This approach was used when only a single boater was exiting the lake at a survey site. The second approach was to hand a boater a survey on a clipboard and ask the boater to fill in his or her responses. When more than one boater were exiting the lake at the survey location at a time, the surveyor personally interviewed one of the exiting boaters and handed surveys to the others. Use of the second approach allowed for collecting more surveys than would have been possible using the first method alone.

Mailed Surveys

Recipients of the mailed surveys were selected randomly from a pool of potential recipients. All owners of marinas on the lake were contacted to obtain lists of slip renters at their marinas (Appendix B). Owners of three marinas—Fairfield Bay, Heber Springs, and Sugar Loaf—responded. Surveys were sent to 25 percent of the names on the lists received.

Names and addresses of adjacent landowners were selected from lists of residents received from county tax offices. Townships and ranges bordering the lake were selected, and sections³ that lay within approximately 1 mile of the lake were chosen. A subset of residents located within these sections were randomly selected to receive surveys.

Surveys were mailed to all recipients chosen, and 1 week later a reminder postcard was sent to all survey recipients.

Boat Counts

Boat counts were conducted from an airplane at an altitude of 1,000 feet. One boat count was conducted by videographing boats on the lake, but this technique was found to be ineffective because of the lack of physical reference points that would allow for identifying the locations of the boats on the lake. All other boat counts were conducted visually, by counting boats on the lake surface during the flight. This approach was determined to be very easy and effective.

Boat counts were conducted on Memorial Day weekend, the Fourth of July holiday period, and one non-holiday weekend. Weekdays other than those that fell within the Fourth of July period were not used for boat counts because the purpose of the counts was to estimate usage during high-use times. Boat counts were conducted on 7 days.

Boats on the lake were counted by area of the lake. The Corps provided a map of Greers Ferry Lake with the lake divided into five areas, and these areas were used for delineating boat counts. The same division of the lake into five areas was used when requesting location-specific

³ Official county land sections. Each combination of township and range contains 36 sections.

information from exiting boaters during surveys. The five lake areas are described below and depicted on Figure 1.

- Area 1:** From the Greers Ferry Dam to where the lake opens up at Eden Isle and the islands across the lake in this region, to a point east of Cherokee Park where the shoreline turns abruptly southward.
- Area 2:** The large open area of the lake from the southern area of the lake where Cove Creek park is located to the north between Cherokee and Shiloh. It is bounded to the east by Area 1 and to the west by Millers Point, west of Eden Isle, and the point on the northern shore of this area just east of Shiloh park.
- Area 3:** The Narrows, including the part of the lake south of the Narrows to Shiloh park and north of the Narrows between the narrow pass of the lake west of Mill Creek park and the bridge across the lake just east of Devils Fork park.
- Area 4:** The northern part of the lake west of the narrow pass that lies west of Mill Creek park out to Choctaw park, including all waters in this northwestern portion of the lake.
- Area 5:** The northern part of the lake east of the bridge at Devils Fork park, including all waters of the Middle Fork of the Little Red River that extends north of Devils Fork park.

2. Results of the Study

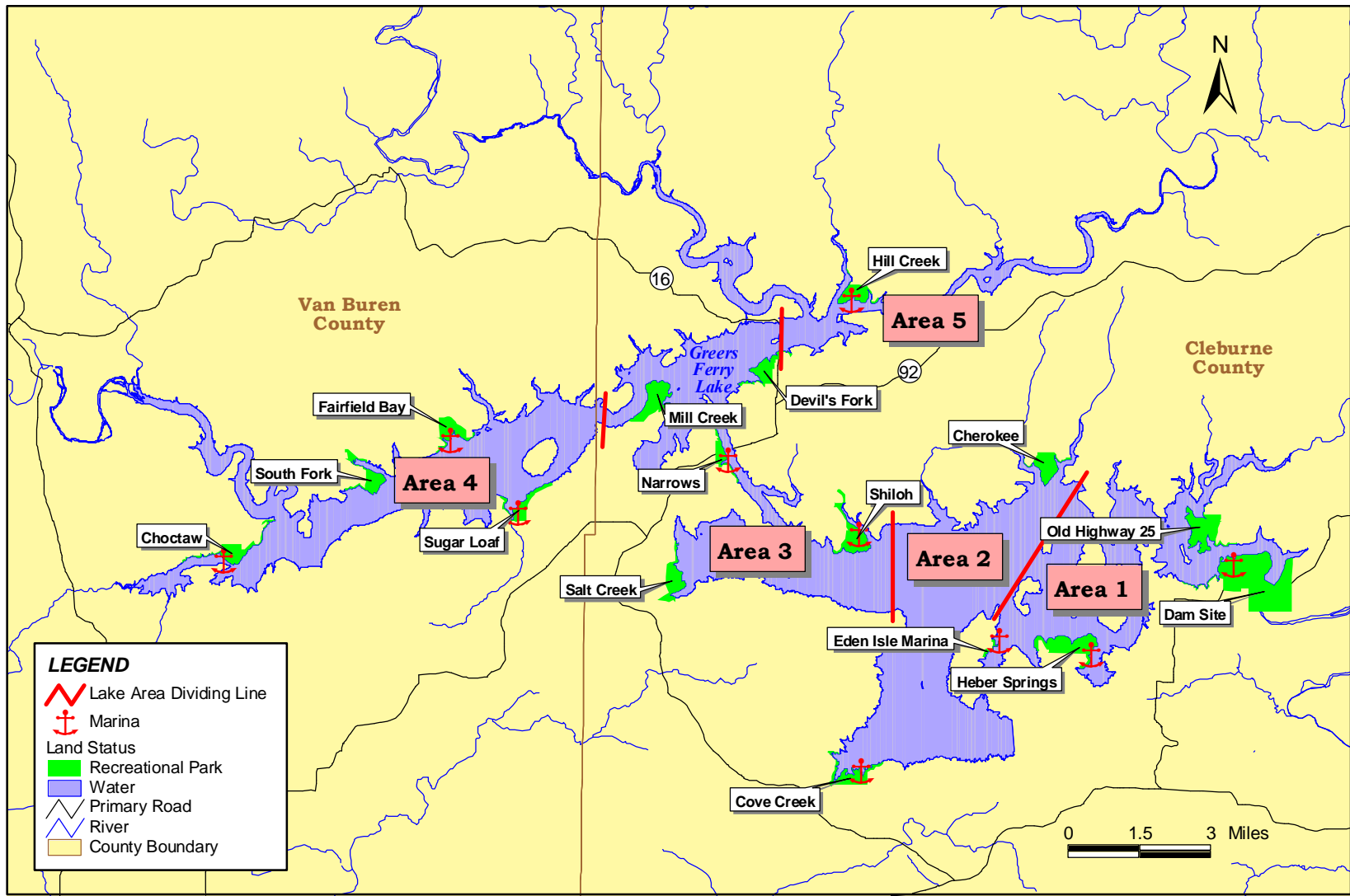
The survey and study results presented in the following subsections are arranged generally to follow the organization of the survey instruments (Appendix C). A total of 651 boater surveys were conducted in lake parks and Eden Isle marina during the survey period (Table 1). Surveys were sent to 451 adjacent landowners in Cleburne and Van Buren Counties and to 204 slip renters from three marinas. A total of 169 surveys were returned by adjacent landowners (37.5 percent return rate) and 115 surveys were returned by marina slip renters (56.4 percent return rate).

Visitor Descriptions (Parts I and II of the survey)

Questions on the surveys were used to collect general information about boaters using Greers Ferry Lake. The following information was requested:

- Whether the boater had boated at Greers Ferry Lake before the survey day.
- The number of years the boater had been coming to Greers Ferry Lake.
- The approximate number of weekdays and weekend days in 2000 that the boater had visited Greers Ferry Lake.

	Date of Survey					Total
	May 26, 27	June 9, 10	June 13, 14	June 18, 21	July 4-8	
Number of Boaters Surveyed	127	96	35	65	328	651



Recreational Parks and Lake Area Designations

Figure 1

- The distance from the park where the survey was conducted to the boater's permanent residence.
- Whether the visit was a 1-day visit or a visit of more than 1 day. If the visit was for more than 1 day, the total number of days the boater was visiting was requested.
- The number of hours spent on the lake on the day of the survey.
- The type(s) of boat(s) used by the boater on the lake.
- The horsepower and length of the boater's boat(s).
- The activities in which the boater participated on the day of the survey and the approximate amount of time spent on each activity.

General information of this type also was requested from adjacent landowners and marina slip renters. Information related to a specific visit was not requested from adjacent landowners and marina slip renters on the mailed surveys.

The vast majority of boaters surveyed at the lake had boated at Greers Ferry Lake previously (Table 2). It was assumed that marina slip renters had boated at the lake before, and this question was not addressed to them. Only two-thirds of adjacent landowners stated that they owned a boat. Dividing the length of experience at Greers Ferry Lake into 5-year periods, surveyed boaters who had been visiting the lake 10 years or fewer were best represented, while marina slip renters most commonly had been boating at the lake for 15 years or fewer. Adjacent landowners were fairly evenly distributed from less than 5 years through 30 years and more experience at the lake.

A number of people from all three groups stated that they had spent no weekdays on the lake in 2000 (Table 3). Dividing the responses into 5-day periods, the surveyed boaters most often indicated that they had spent 1 to 5 weekdays on the lake. Marina slip renters and adjacent landowners were well distributed among those who had spent 1 to 20 weekdays on the lake in 2000. A number of people in each group indicated that they had spent more than 30 weekdays on the lake in 2000.

Both surveyed boaters and adjacent landowners indicated that they had spent no weekend days on the lake in 2000, whereas only one marina slip renter indicated this (Table 4). Surveyed boaters and adjacent landowners were well represented by those who stated that they had spent 1 to 20 weekend days on the lake, and marina slip renters were well distributed among those who had spent 1 to 25 weekend days on the lake. A number of people in all groups indicated that they had spent more than 40 weekend days on the lake in 2000.

Surveyed boaters were best represented by those living 26 to 75 miles from the lake, accounting for the numerous respondents who stated that they live in the Little Rock area (Table 5). Many boaters lived within 10 miles of the lake, and all distances—from less than 10 miles to more than 200 miles—were well represented.

Only surveyed boaters were asked to answer questions about a specific visit to the lake, namely, the visit they were completing as they came off the lake. By far, most visiting boaters were spending 1 to 3 days at the lake; 1-day visits were the most common (Table 6). Those who answered "year-round" are presumed to be area residents.

The length of time spent on the lake on the day of the visit was another question asked only of surveyed boaters (Table 7). Most commonly, boaters indicated that they spent 2 to 7.5 hours on

	Boaters^a (n = 571)	Marina Slip Renters (n = 109)	Adjacent Landowners (n = 90)
First-time visitors	52	n/a	n/a
Boated before at GFL	583	n/a	"Own a boat": Yes = 87; No = 41
Years coming to GFL (average/st. dev.)	Avg = 12.56 St. dev. = 10.56	Avg = 14 St. dev. = 9.98	Avg = 20.1 St. dev. = 10.86
1 to 5	206	23	9
6 to 10	117	28	17
11 to 15	63	22	9
16 to 20	68	12	17
21 to 25	46	8	8
26 to 30	39	7	14
> 30	32	9	16

Note: GFL = Greers Ferry Lake; St. dev. = standard deviation; n/a = not applicable.
^a Responses to boater exit surveys.

	Boaters^a (n = 459)	Marina Slip Renters (n = 102)	Adjacent Landowners (n = 78)
Average/st. dev.	14.4/30.71	24.67/31.77	32.45/44.34
Zero	92	5	8
1 to 5	146	18	14
6 to 10	93	22	9
11 to 15	36	14	8
16 to 20	26	10	10
21 to 25	18	4	3
26 to 30	13	8	6
> 30	35	21	20

^a Responses to boater exit surveys..

	Boaters^a (n = 539)	Marina Slip Renters (n = 103)	Adjacent Landowners (n = 79)
Average/st. dev.	17.21/18.97	18.45/13.88	18.32/19.54
Zero	47	1	8
1 to 5	99	10	15
6 to 10	110	32	15
11 to 15	62	15	5
16 to 20	88	13	15
21 to 25	28	14	6
26 to 30	34	3	5
31 to 35	10	3	0
36 to 40	21	5	1
> 40	40	7	9

^a Responses to boater exit surveys.

Table 5. Distance of Greers Ferry Lake to Permanent Home.	
	Boaters^a (n = 619)
Average/st. dev.	99.40/180.52
0 to 10	79
11 to 25	39
26 to 50	170
51 to 75	136
76 to 100	41
101 to 150	67
151 to 200	46
> 200	40

^a Responses to boater exit surveys.

Table 6. Length (Days) of Current Visit^a to Greers Ferry Lake.	
	Boaters^b (n = 605)
Years: Average/st. dev.^c	5.93/12.49
One	270
2 to 3	164
4 to 5	71
6 to 7	45
8 to 14	24
> 14	12
Year-round	19

Note: This question was not included on mailed-out surveys.
^a Current visit = visit during which the survey was conducted.
^b Responses to boater exit surveys.
^c Excludes those who answered "year-round."

Table 7. Length (Hours) of Current Visit^a to Greers Ferry Lake.	
	Boaters^b (n = 614)
Hours: Average/st. dev.^c	4.72/2.18
Zero	5
< 2	31
2 to 3.5	149
4 to 5.5	227
6 to 7.5	140
8 or more	62

Note: This question was not included on mailed-out surveys.
^a Current visit = visit during which the survey was conducted.
^b Responses to boater exit surveys.
^c Ignores answers of "more than 15 hours."

the lake, and the most common time length was 4 to 5.5 hours. Very few boaters indicated that they had spent either the entire day on the lake or fewer than 2 hours on the lake. It is unclear what was meant by those who indicated that they had spent zero hours on the lake.

Runabouts, or ski boats, and pontoon boats were the most common types of boats used by all groups (Table 8). Fishing boats were used as much as runabouts by adjacent landowners and were the third most common type of boat used by surveyed boaters and marina slip renters. Personal watercraft, or jet skis, were the fourth most common type of boat used by surveyed

TYPE OF BOAT	Boaters ^a			Marina Slip Renters			Adjacent Landowners ^e	
	No. ^b	HP ^c (avg)	Ft ^d (avg)	No.	HP (avg)	Ft (avg)	No.	Ft (avg)
Runabout/speed or ski boat	220	3-1000 (183)	7.5-35 (19.4)	29	40-375 (165.42)	15-24 (19.02)	23	17.34
Fishing boat	93	6-269 (97.6)	12-2 (17)	21	15-200 (89.4)	12-21 (17.1)	23	16.13
Personal water craft (jet ski)	50	6-650 (118)	2.5-19 (9.2)	11	50-135 (98)	14-19 (16.5)	4	10.13
Pontoon boat	204	22-250 (82)	14-36 (23.2)	69	13-135 (67.5)	18-33 (23.2)	46	23.94
Deck boat	13	5-325 (175)	16-26 (21.2)	2	115-175 (145.0)	19-23 (21.0)	4	22.06
Sailboat	18	4-115 (22)	16-40 (26.2)	10	3-25 (12.3)	16.5-32 (25.3)	4	18.5
Cabin cruiser	9	150-520 (308)	23-38 (27.9)	4	185-400 (271.3)	26-30 (27.8)	1	24
Houseboat	13	40-700 (183)	21-56 (41.2)	2	90-225 (157.5)	40-43 (41.5)	2	74
Rowboat/canoe/kayak	0	n/a	n/a	1	20	15	12	15.9
Windsurfer	1	n/a	n/a	0	n/a	n/a	1	12

Note: HP = horsepower; avg = average; ft = feet.
^a Responses to boater exit surveys.
^b Number of respondents with this type of boat.
^c Range of horsepower and average (in parentheses)
^d Range of length and average (in parentheses)
^e Horsepower data not collected from adjacent landowners.

boaters and were much more commonly used by this group than were deck boats, sailboats, cabin cruisers, houseboats, and nonmotorized craft. This finding is not surprising given that visiting boaters must trailer their vessels. Marina slip renters used sailboats as commonly as personal watercraft, and adjacent landowners used both deck boats and sailboats as commonly as personal watercraft. Adjacent landowners were the only group to respond that they commonly used nonmotorized craft.

All groups indicated that the most common activities to engage in at Greers Ferry Lake are pleasure boating, swimming, water skiing, fishing, tubing, and jet skiing (Table 9). Swimming was the most common activity among surveyed boaters, pleasure boating was the most common among marina slip renters, and fishing was the most common among adjacent landowners. Fewer representatives of each group were sailors or engaged in the less popular activities of rafting, rowboating, scuba diving, or other activities such as kneeboarding. Across all groups, many people engaged in more than one activity, with an average of two to three activities per person.

Surveyed boaters were asked to indicate the amount of time, in hours, they had spent on individual activities the day of the survey (Table 10). Marina slip renters and adjacent landowners were asked to indicate the approximate percentage of their time spent on individual activities. The least amount of time that surveyed boaters indicated they spent on an individual activity was about 2 hours. This corresponds well with the response of surveyed boaters indicating that they most commonly spent about 4 hours on the lake and engaged most commonly in two activities. Surveyed boaters indicated that they spent from 3 to 4.5 hours on average jet skiing, fishing, and sailing, indicating that people who engage in these activities might devote

Table 9. Boater Activities at Greers Ferry Lake.

ACTIVITY TYPE	Number of Respondents Who Participate in the Activity		
	Boaters ^a (n = 597)	Marina Slip Renters (n = 114)	Adjacent Landowners (n = 169)
Pleasure boating	161	95	74
Swimming	275	78	78
Water skiing	129	32	36
Jet skiing	73	12	15
Fishing	106	64	85
Tubing	172	38	31
Sailing	16	11	6
Rafting	4	2	3
Rowboating	1	1	4
Scuba diving	6	1	2
Other activities ^b	41	2	1
Average no. of activities participated in	2	3	3

^a Responses to boater exit surveys.
^b Other activities: picnicking, boat maintenance, testing boat, kneeboarding, parasailing, cliff jumping, resting, hiking, working, spearfishing, feeding fish, socializing.

Table 10. Time Spent on Boater Activities at Greers Ferry Lake.

ACTIVITY	Average Amount of Time Spent on Activities		
	Boaters ^a (n = 597)	Marina Slip Renters ^b (n = 114)	Adjacent Landowners ^b (n = 151)
Pleasure boating	3.1 hr	46.7%	42.4%
Swimming	2.3 hr	27.9%	34.1%
Water skiing	2.1 hr	18.6%	15.4%
Jet skiing	3.5 hr	20.0%	17.9%
Fishing	3.4 hr	39.4%	39.8%
Tubing	1.9 hr	12.2%	11.1%
Sailing	4.5 hr	86.4%	20.8%
Rafting	3.0 hr	22.5%	15.7%
Rowboating	3.0 hr	5.0%	11.3%
Average time spent recreating	5.1 hr	n/a	n/a
Average time spent per activity	3.0 hr	34.5%	22.4%

^a Responses to boater exit surveys.
^b Recipients of mailed surveys were asked what percentage of time they spent on individual activities. The percentages in the table are the proportion of time spent on each activity by those persons who indicated that they participated in the activity.

more of their visits to these activities and less time to other activities. Marina slip renters who sail indicated that they engaged in that activity almost exclusively when they are on the lake. Slip renters who pleasure boat do so for about 50 percent of their time on the lake, and those who fish do so approximately 40 percent of their time. Except for sailing, which adjacent landowners indicated they spend only one-fourth of their time doing, the time that adjacent landowners spend on activities looks much like that of marina slip renters. Adjacent landowners, however, on

average spend about one-fourth of their time on each activity, whereas marina slip renters on average spend one-third of their time per activity.

Spatial Use Characteristics (Parts III and IV of the survey)

Questions on the surveys were used to collect information about the areas of Greers Ferry Lake boaters preferred to use for their activities. The following information was requested:

- The areas of the lake visited by the boater on the day of the survey (boater exit surveys) or generally (mailed surveys) and the activities in which the boater participated in each area visited.
- The reasons for choosing the particular areas for those activities.
- The reasons for choosing the location where the boater entered the lake.
- Whether the boater had favorite places to go on Greers Ferry Lake and, if so, why those locations were the boater's favorite places.
- Whether the boater deliberately avoided any areas of Greers Ferry Lake and, if so, why those areas were avoided.
- Whether the number of boats seen on the lake on the day of the survey was approximately what the boater expected to see, or more or less than what the boater expected to see (boater exit surveys).
- Whether the number of boats usually seen on the lake is approximately what the boater expects to see, or more or less than what the boater expects to see (mailed surveys).
- Whether the number of boats seen on the lake on the day of the survey was approximately what the boater preferred to see, or more or less than what the boater preferred to see (boater exit surveys).
- Whether the number of boats usually seen on the lake is approximately what the boater prefers to see, or more or less than what the boater prefers to see (mailed surveys).

General information of this type was requested from adjacent landowners and marina slip renters. Information related to a specific visit was not requested from those two groups on the mailed surveys. The data collected are presented in tables in this section and on Lake Area Use maps in Appendix D.

Pleasure boating and swimming were the first and second most popular activities, respectively, in all five areas of the lake (Table 11). (Descriptions of the five lake areas are on page 4.) Tubing and water skiing were the next most popular activities in terms of total participants and ranked third and fourth in lake areas 1, 2, and 3. Fishing was more popular than water skiing in area 4, and it tied tubing and water skiing in popularity in area 5. Sailing was slightly more popular than jet skiing in area 2, the only area of the lake with a large expanse of open water, while jet skiing clearly was more popular than any of the remaining activities listed on the surveys, including camping, rafting, kneeboarding, rowboating, and scuba diving. Area 1 received the most visitors, and areas 2 and 5 received the fewest.

The most common response across the groups in terms of expectations and preferences for the numbers of boats seen on the lake was "as many boats as were seen" (Table 12). The second most common response across the groups was an expectation and preference to see fewer boats. Nearly as many marina slip renters, however, expected to see more boats as expected to see fewer boats, and the proportion of respondents who preferred to see more boats was greater in adjacent landowners than in other groups. The data indicate a significant difference among boaters,

Table 11. Activities Participated in by Area by Boaters^a on Greers Ferry Lake.

ACTIVITY	Area 1	Area 2	Area 3	Area 4	Area 5	Total
Pleasure boating	100	81	100	96	68	445
Swimming	63	39	41	73	45	261
Tubing	45	27	29	27	26	154
Waterskiing	50	28	29	19	26	152
Fishing	21	20	20	24	26	111
Jet Skiing	16	10	12	12	10	60
Sailing	0	12	1	2	1	16
Other	4	0	3	2	1	10
Camping	2	0	0	1	1	4
Rafting	0	0	2	1	0	3
Kneeboarding	0	0	1	0	0	1
Rowboating	1	0	0	0	0	1
Scuba diving	1	0	0	0	0	1
Area totals	303	197	238	257	204	

^a Respondents to boater exit surveys.

Table 12. Expectations and Preferences of Visitors for Boats Seen on Greers Ferry Lake.

	Boaters ^a	Marina Slip Renters	Adjacent Landowners
Visitors' Expectations			
As many boats as were seen	317	77	73
Expected to see fewer boats	220	19	44
Expected to see more boats	91	16	8
Visitors' Preferences			
As many boats as were seen	412	72	60
Preferred to see fewer boats	163	29	38
Preferred to see more boats	51	11	26

^a Respondents to boater exit surveys.

marina slip renters, and adjacent landowners in expectations and preferences for the number of boats on the lake (Microsoft Excel Chitest value⁴ = 0.0002).

Surveyed boaters listed the reasons why they visited certain areas, and in a later question they were asked whether they had favorite areas on the lake. Because the answers to the two questions were very similar, the results presented here reflect answers to the questions about the boaters' favorite locations and reasons for their being favorite locations (Tables 13 through 15).

A variety of locations were mentioned as favorites, and the answers ranged from very unspecific, such as "the whole lake," to very specific, such as individual coves and bluffs. The reasons provided were divided into two categories because surveyed boaters mentioned both activities in which they enjoyed participating at different lake locations and characteristics of those locations. Many boaters mentioned areas 1, 2, and 5 of the lake, the whole lake, and park locations as their

⁴ A Chitest value of less than 0.05 indicates significance at the 95 percent confidence level.

Table 13. Favorite Locations of Boaters^a on Greers Ferry Lake.

	Total Number of Respondents	DESIRABLE CHARACTERISTICS													ACTIVITIES														
		Adult Population	Central Location	Clean Water	Convenient	Family-Oriented	Friendly Staff/People	Good Beaches	Good Facilities	Habit, "Where We Always Go"	Handicap Access	Launching, Access Is Easy	No Underwater Obstructions	Not Crowded	Open Water	Quiet	Scenery	Smooth Water	Camping	Dining	Fishing	Hiking	Jump Off Cliffs	Sailing, Caters to Sailors	Scuba Diving	Swimming	To Socialize	Waterskiing	
Area 1	11				6										1	1	3				3								
Area 2	31				11										1	3	5				2			1					
Area 3	6		1		1										3	1	1				1								
Area 4	9			1	1										5	1	2				1					1			1
Area 5	23				7										6	4	4				2					1			6
Whole Lake	34			2	4										3	14	1				2		1		1				1
Archie Fork River	1																				1								
Boat Island	1																				1								
Budd Creek	1																				1								
Cherokee	12				2	1									2	3	2	2	2		1								
Chimney Rock	1																				1								
Choctaw	14				5										1	1	1	1	1		3					1			
Chute	1														1														
Cliffs, bluffs ^b	15																												
Cold Creek	1																												
Cove Creek	35			2	4										7	4	4	1	1		7						4	3	1
Coves ^c	27			1	5	2									8	6	6				2				n/a			3	
Dam Site	35				6	3									2	3										2		3	
Dave Creek	1														1														
Devils Fork	39			1	6	1									6	3	3	3	3		7						3	2	
Diamond Bluff Mtn	1														1														
Eden Isle	16				3										1	1	3				1								
Fairfield Bay	12				3										1	2	1	1	1		1					2		1	
Frog Island	1																												
Frontier Canyon	3																												
Goat Island	8				1										1	1	3				1	1							1
Hamburger Island	1														1														
Heber Springs	22			1	5										4	1	17	3											
Higgen Bay	5														2	1	2				1								1
Hill Creek	15				1										2	3					2								1
Lynn Creek	5														1	1	1				2								1
Middle Fork	9			1											4	1	1				2								1
Millie Mark 11	2				1																1								

Table 13. Favorite Locations of Boaters^a on Greers Ferry Lake (cont.).

	DESIRABLE CHARACTERISTICS																ACTIVITIES													
	Total Number of Respondents	Adult Population	Central Location	Clean Water	Convenient	Family-Oriented	Friendly Staff/People	Good Beaches	Good Facilities	Habit, "Where We Always Go"	Handicap Access	Launching, Access Is Easy	No Underwater Obstructions	Not Crowded	Open Water	Quiet	Scenery	Smooth Water	Camping	Dining	Fishing	Hiking	Jump Off Cliffs	Sailing, Caters to Sailors	Scuba Diving	Swimming	To Socialize	Waterskiing		
Mill Creek	14				7								4								3		1							
Millers Point	5				1	1							1	1	1	1					1				1				1	
Narrows	24		1		2	1		1								4	2	1	1	1	4	1			1					
Old Highway 25	21	1	2		7			1				5	2		2	2	1		1						2					
Peter Creek	17		1		1								5	3	5	7					1		1							
Point 2	3		1									1				1							1							
Red River	5												1			2	1													
Rock Island	2												2												1					
Salt Creek	2														1															
Sandy Beach	8				1																		1							
Shiloh	29	1			6	1	1	2	3			1	3	5	2	4	1						1						1	
Snake Island	1																													
South Fork	5		2		1								1	1	2	1													1	
Sugar Loaf	84		2	12	4	4		1	4				16	1	6	18	7	2	2	2	8	1	1		4	2				
Tannenbaum	7				1																									
Tumbling Shoals	3				1		1																							
Yacht Club ^d	2																													

Note: Other places (and number of respondents) mentioned as being favorites: Beloit Bay (1), Channel (1), Drip Creek (1), Five Fingers (2), Ouchita (1), and Prior Mountain (1). No reasons were listed for these locations.

^a Responses of boaters at exit surveys. Column 2, *Total Number of Respondents*, is the number of boaters surveyed who chose the location as a favorite one. Each of the other columns provides the number of respondents who mentioned the reason in the column for the location's being a favorite.

^b Specific cliffs/bluffs mentioned were Fairfield Bay, Narrows, Hill Creek, Sugar Loaf, water intake, and area 1.

^c Respondents did not always specify which cove. Specific coves mentioned were area 2, area 4, area 5, Cherokee, Choctaw, Clinton, Cove Creek, Dam Site, Devils Fork, Eagles Nest, Eden Isle, Fairfield Bay, Hamilton, Heber Springs, Hill Creek, Kidney, Narrows, Point 2, Sailboat, Sugar Loaf, Tannenbaum, Tinney, and Twin Coves.

^d One respondent did not specify a yacht club; one respondent specified Greers Ferry Yacht Club.

Table 14. Favorite Locations of Marina Slip Renters on Greers Ferry Lake.

	Number of Respondents	Convenient	Good Anchoring	Swimming	Sailing	Not Congested	Scenery	Open Water	Water Skiing	Tubing	Fishing	Calm Water	Clean Water	No Jet Skiers, Waterskiers	Quiet	Scuba Diving	Pleasure Boating	Cleanliness	Good Marina	Socialize	Friendly Staff	Hiking	Other ^a
Area 1	4	2	1	1	1																		
Area 2	10			1	2	5	3	1	1	1													
Area 3	6	1			1	3	2		1														2
Area 4	16	4	4	3		6	4	2	2		4	1	1										2
Area 5	7	1				1	3	1	1		1			1	1								2
Bluffs/Cliffs ^b	4			1			1																
Choctaw	3						2							1									
Cove Creek	4			1			1								1								
Coves ^c	22	3	1	4		7	1		1		1	5		1	1				3				2
Dam Site	3			1			1																1
Dave Creek	2			1			1									1							
Devils Fork	5						1	1	1		1					1	1						1
Eden Isle	3						2				1					1	1						
Fairfield Bay	5	1		1							1							1					3
Goat Island	3			2											1				1				
Heber Springs	4	3		1																			1
Hill Creek	6					1	3				1	1	1										
Little Red River	4			2			1		1	1	1	3											
Lynn Creek	5						1				3												
Middle Fork	4						2				2												
Narrows	8			2			2		1	1	1	1			1		2						1

Table 14. Favorite Locations of Marina Slip Renters on Greers Ferry Lake (cont.).

	Number of Respondents	Convenient	Good Anchoring	Swimming	Sailing	Not Congested	Scenery	Open Water	Water Skiing	Tubing	Fishing	Calm Water	Clean Water	No Jet Skiers, Waterskiers	Quiet	Scuba Diving	Pleasure Boating	Cleanliness	Good Marina	Socialize	Friendly Staff	Hiking	Other ^a
Old Highway 25	4			1			1				1					1							1
Peter Creek	2						1																1
South Fork	19	1				2	5		1		4	2			3	1							
Sugar Loaf	22	5		2		6	6				2	1	1		1	1					2		1
Sugar Loaf Mountain	8						3				1									1		3	
Tannenbaum	4	1				2	1		1		1												1
The Jungle	3						1				1												

Note: Places that were mentioned only once (and reasons): Beloit Bay (convenient, calm), Dove Creek (swimming), Drip Creek (fishing), Edgemont (good anchoring, clean water, beach), Five Fingers (fishing, scenery), Hamilton Point (convenient), Hooter Hollow (fishing), Little Peter Creek (scenery, recreational opportunities), Millers Creek (scenery), North Fork (fishing), Pinney Point, Points #1 and #2 (convenient), Prior Mountain (scenery), Lake Front Inn restaurant (eating), Tannenbaum restaurant (eating), Salt Creek (fishing), Sandy Beach (safe, clean), Sugar Loaf to Mill Creek (calm, skiing, tubing, swimming), tributaries (calm, serene), whole lake (scenery, serenity, bluffs).

^a Other reasons mentioned: floating, sunning, eating, wakeboarding, picnicking, waterfalls, waterfalls, beaches.

^b Bluffs/cliffs mentioned: Dam Site, Hill Creek, South Fork, unspecified.

^c Coves mentioned: Area 4, Cherokee, Fairfield Bay, Hamilton, Harpers, Heber Springs, Kidney, Millers Point, Thomas.

Table 15. Favorite Places of Adjacent Landowners at Greers Ferry Lake.

	Number of Respondents	Convenient	Not Congested	Scenery	Fishing	Socialize	Swimming	Safe	Relaxing	Good Facilities	Calm Water	Open Water	Habit	Camping	Picnicking	Quiet	Scuba Diving	Accessible	Beaches	Atmosphere	Recreation	Other
Area 1	3	1			1		1															
Area 4	2	2	1					1														
Area 5	3	1			3				1													
Whole Lake	3	1		1																		
Choctaw	23	12	5	3	3	1	2	1		3	1	1	1	1	1							
Coves ^a	10	3	1				3	1		1	3					4	1	1				
Cove Creek	7	3	1	1												1			1			
Dam Site	8	2		1	1		1			1									1	1	1	
Devils Fork	2			1	1								1									
Eden Isle	2																			1		
Fairfield Bay	2					1															1	
Goat Island	2				1	1																1
Heber Springs	4															1			1			2
Middle Fork	3			1	2																	1
Miller Bottom	2		1	1			1															1
Millers Point	2		2	1								1										
Narrows	5			3						2			1									1
Old Highway 25	14	4	2			1	2	1					2	2	1	1		2	1	1	1	
Peter Creek	11	2	2	2	3						2					3				3		
Sandy Beach	7	1	1			2	2								1	1			1		2	
Shiloh	2				1		1															
South Fork	9	3	1	2	4				1				1									
Sugar Loaf	13	4	2	6			2					1									4	
Sugar Loaf Mtn	6	2	2	4																	1	1
Tannenbaum	3			1		2																

Note: Locations named by only one respondent were Area 2, Alum Cave, Archie Fork, Big Dike, bluffs, Cherokee, Dave Creek, Diamond Bluff, Edgemont, Hill Creek, islands, JFK Park, Little Red River, Mill Creek, Point 1, Point 14, Point 14a, Rock, Salt Creek, Tumbling Shoals, water intake.

^a Coves mentioned (and number of respondents who mentioned them) were Dam Site (2), Kidney (4), Sills Peninsula (1), Riviera (1), Thunderbird (1), unspecified (1).

favorite locations. Marina slip renters most commonly mentioned areas 2 and 4, as well as coves around the lake, as favorites. The South Fork area and the Sugar Loaf area were also commonly mentioned as favorites among marina slip renters. Convenience, scenery, swimming, and fishing were the most common reasons provided for any location's being a favorite.

Locations mentioned by surveyed boaters as those avoided were far fewer than locations listed as favorites. Two locations stand out from the rest as areas avoided on the lake—Dam Site and the Narrows. Heber Springs and large, open areas were each also mentioned by more than 10 people—Heber Springs because of congestion and large, open areas because of rough water conditions. Congestion and rough water conditions were the two most common reasons for avoiding a location. Some boaters mentioned jet skis and ski boats as the “location” avoided.

Management Issues (Part V of the survey)

The surveys contained a set of questions arranged as three tables in which people were asked to check an option corresponding to their opinion about conditions and management issues at Greers Ferry Lake. The questions on the first of the three tables included the following:

- People were asked to check one of the following options concerning the availability of facilities at the lake: too few/little, adequate number/amount, too many/much, or don't know.
- The facilities people were asked to provide their opinion about were campgrounds, swimming beaches, boat ramps, picnic areas, playgrounds, docks, marinas, parking facilities, commercial establishments, people, fishermen, scuba divers, pleasure boaters, jet skis, sailboats, and no wake zones.

The questions on the second of the three tables included the following:

- People were asked to check one of the following options concerning a series of statements: strongly disagree, disagree, neutral, agree, strongly agree.
- The statements to which people were asked to respond were the following:
 - “There are an adequate number of facilities on the lake.”
 - “Private docks interfere with my use of the lake.”
 - “Facilities at the lake are adequately maintained.”
 - “Lakefront homeowners should be allowed to clear underbrush along the shoreline.”
 - “Lakefront homeowners should be allowed to clear trees along the shoreline.”
 - “There are too many private docks on the lake.”

The questions on the third of the three tables included the following:

- People were asked to check one of the following options concerning potential problem issues at the lake: not a problem, slight problem, moderate problem, serious problem, or very serious problem.
- The potential problem areas listed were erosion of banks, obstructions in the water, overhanging trees/branches, muddy water, water pollution, litter on the banks, litter in the water, human body waste, people shouting and yelling, people being inconsiderate, boats speeding, and crime.

The data collected from this series of questions are presented in tables and figures in this section. Concerning the question that asked for opinions about the adequacy of facilities at Greers Ferry

Lake, a pattern emerges from the data (Table 16). The pattern is most evident in the charts created from the data (Figures 2 through 17). The common opinion for almost all facility types was that there is an adequate number of each. Somewhat fewer feel that there are too few facilities, and even fewer feel that there are too many facilities. This pattern is broken for people (Figure 11), jet skis (Figure 12), and pleasure boats (Figure 15). In the case of jet skis, the most common response was that there are too many, and very few respondents said that there are too few. In the case of both people and pleasure boats, most boaters said, as they did for most facility types, that there is an adequate number. However, more respondents said that there are too many people and pleasure boats than said there are too few.

The data for this series of questions indicate that there is a significant difference in opinion between boaters and marina slip renters about the adequacy of the number of docks, marinas, campgrounds, boat ramps, scuba divers, and no wake zones on the lake (Microsoft Excel Chitest values = 0.00007, 0.0056, 0.0003, 0.049, 0.0004, and 0.0004, respectively). No significant difference in opinion among the two groups was found with respect to parking facilities, commercial establishments, swimming beaches, picnic areas, playgrounds, people, jet skis, fishers, pleasure boats, and sailboats.

People were asked to indicate the extent to which they agreed with six statements, four of which are of particular interest—the two that pertain to private docks and the two that pertain to vegetation modification (Table 17). Responses to the statement, “Private docks interfere with my use of the lake” displayed a pattern common to all three groups. (The data are presented graphically in Figure 18.) Most respondents in each group disagreed with the statement. Next most commonly, respondents either strongly disagreed or were neutral and, least commonly, respondents either agreed or strongly agreed with the statement. The data indicate a significant difference in opinion among boaters, marina slip renters, and adjacent landowners about whether private docks interfere with one’s use of the lake (Microsoft Excel Chitest value = 5.18E-13).

Marina slip renters and adjacent landowners responded similarly to the statement, “There are too many private docks on the lake.” (The data are presented graphically in Figure 19.) Both groups were mostly neutral to the statement or, second most commonly, disagreed with it. The percent of those who strongly disagreed with the statement and the percent of those who agreed were roughly equal. In each group, those who strongly agreed with the statement were fewest. Surveyed boaters in general showed a similar distribution in their responses to the statement, except that slightly more boaters disagreed with the statement than were neutral about it. Fewer boaters either agreed or strongly disagreed with the statement, and those who strongly agreed with the statement were again the fewest in the group. The data indicate a significant difference in opinion among boaters, marina slip renters, and adjacent landowners about whether there are too many private docks on the lake (Microsoft Excel Chitest value = 3.6E-8).

Marina slip renters and adjacent landowners responded to the statement, “Lakefront homeowners should be allowed to clear trees along the shoreline” similarly. (The data are presented graphically in Figure 20.) Most respondents in both groups strongly disagreed with the statement and roughly equal percentages of both groups disagreed with or were neutral about the statement. The two groups differed in the degree of agreement with the statement, however. More marina slip renters agreed than strongly agreed, and more adjacent landowners strongly agreed than agreed. Among surveyed boaters, a roughly equal number disagreed with the statement as agreed with it, a lesser number were neutral, and an even lesser number were nearly evenly divided between strongly disagreeing and strongly agreeing. The data indicate a significant difference in

Table 16. Responses Concerning the Adequacy of Facilities at Greers Ferry Lake.

	Too Few/ Little		Adequate Number/ Amount		Too Many/ Much		Don't Know	
	Btr ^a	MSR ^a	Btr	MSR	Btr	MSR	Btr	MSR
Docks	173	37	357	55	16	14	60	3
Marinas	75	24	484	80	9	5	40	2
Parking facilities	252	37	325	71	3	0	31	1
Commercial establishments	236	39	294	56	12	3	64	10
Campgrounds	116	12	373	80	2	4	122	13
Swimming beaches	151	36	367	68	5	0	89	8
Boat ramps	136	18	416	82	4	3	56	9
Picnic areas	85	19	409	80	2	0	115	12
Playgrounds	149	26	259	59	1	0	202	23
People	18	1	452	75	89	22	50	12
PWCs/jet skis	18	1	250	29	321	37	21	3
Fishers	79	11	385	85	17	2	128	14
Scuba divers	87	8	202	58	6	6	311	37
Pleasure boaters	13	2	452	81	121	24	26	5
Sailboats	129	21	326	71	8	3	145	14
No wake zones	59	26	486	78	22	5	40	2

^a Btr = boater from exit survey; MSR = marina slip renter (mailed survey). This question was not included on the survey sent to adjacent landowners.

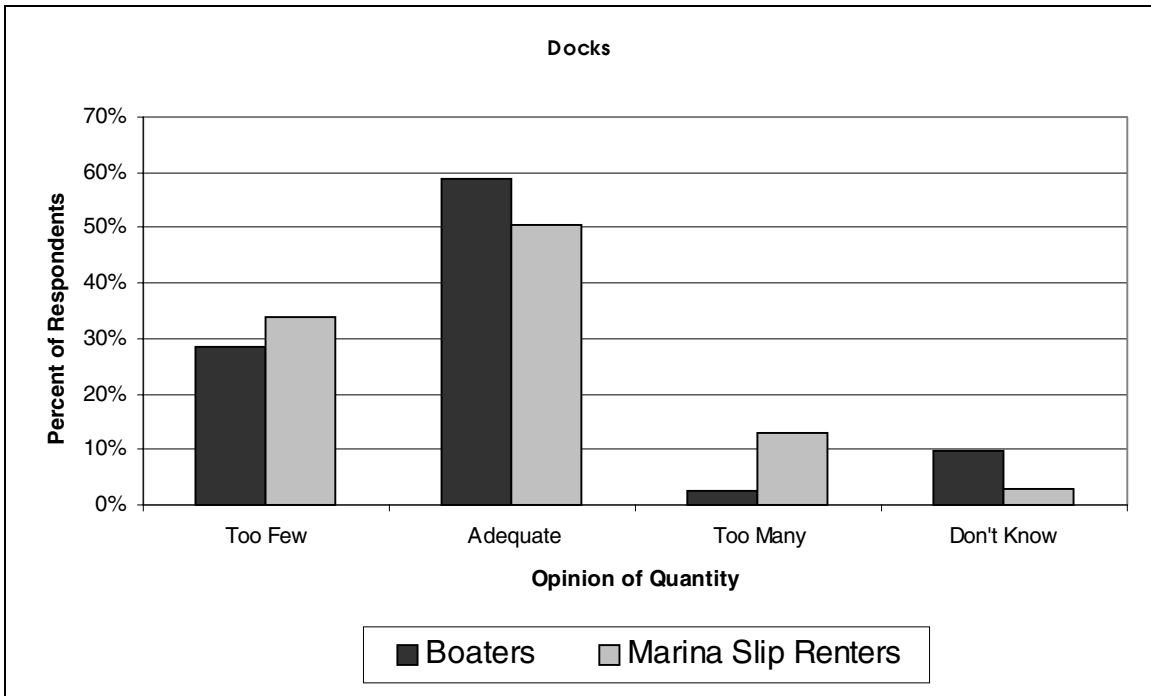


Figure 2. Opinion regarding number of docks.

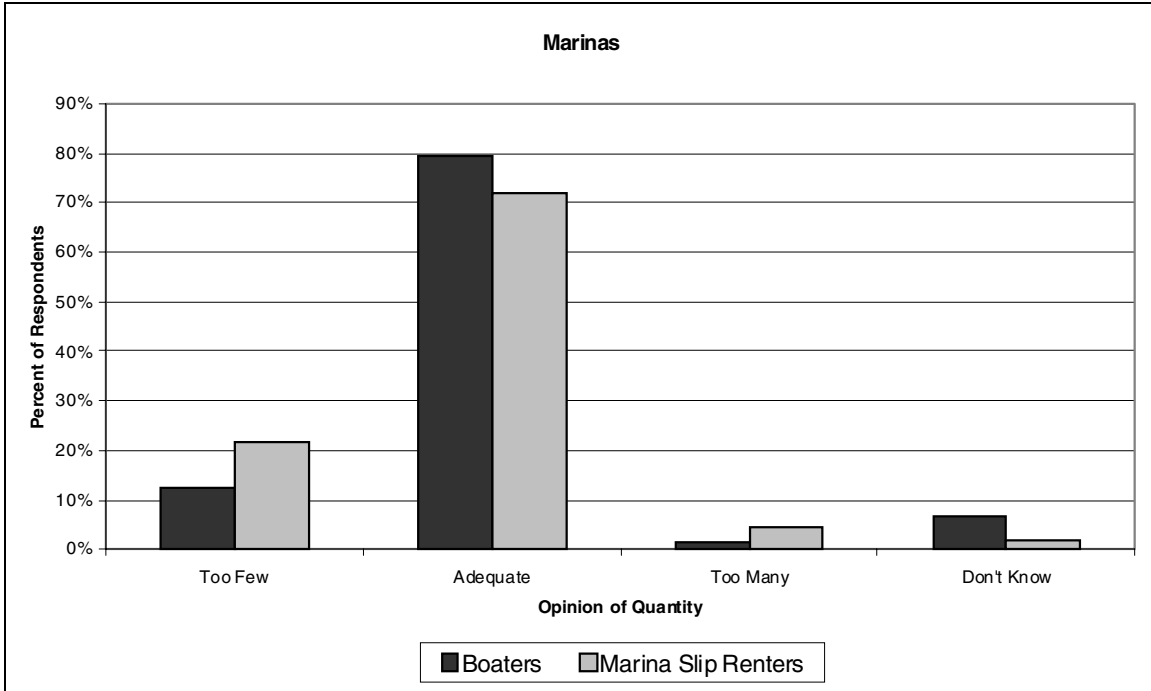


Figure 3. Opinion regarding number of marinas.

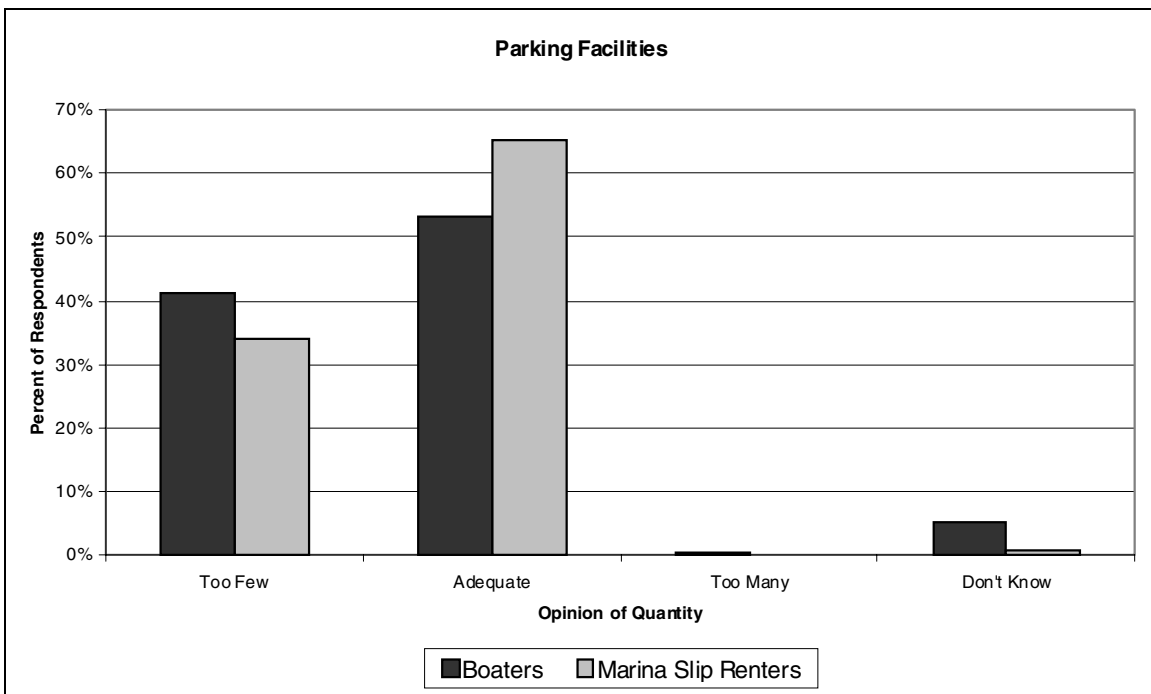


Figure 4. Opinion regarding number of parking facilities.

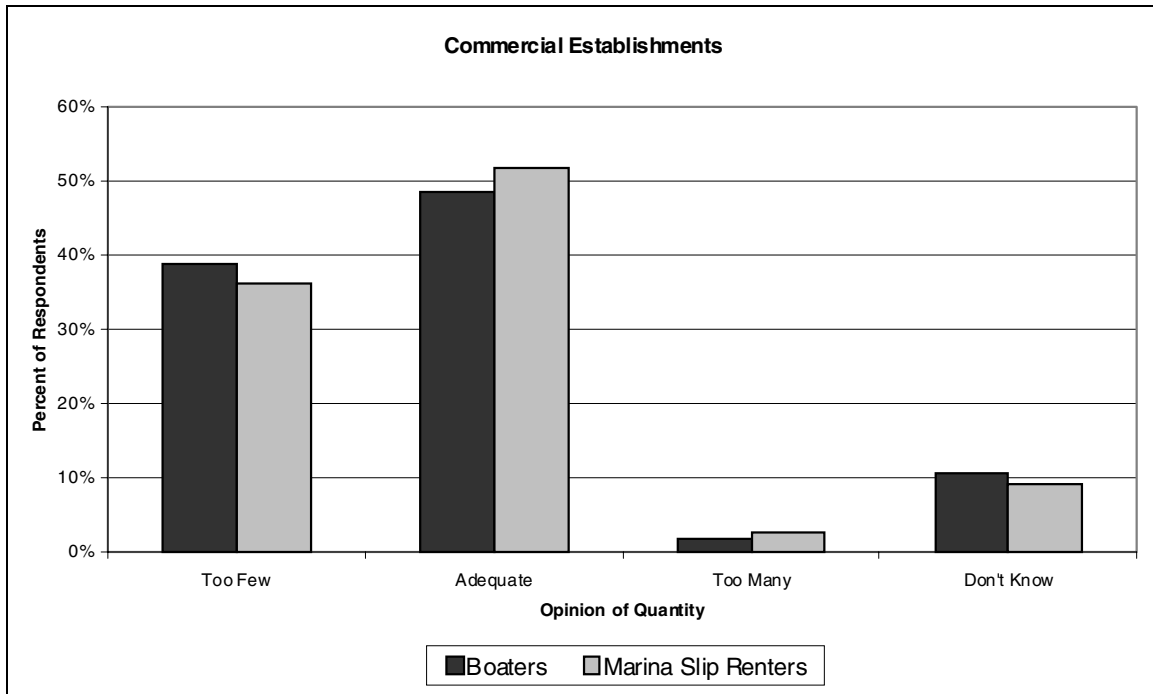


Figure 5. Opinion regarding number of commercial establishments.

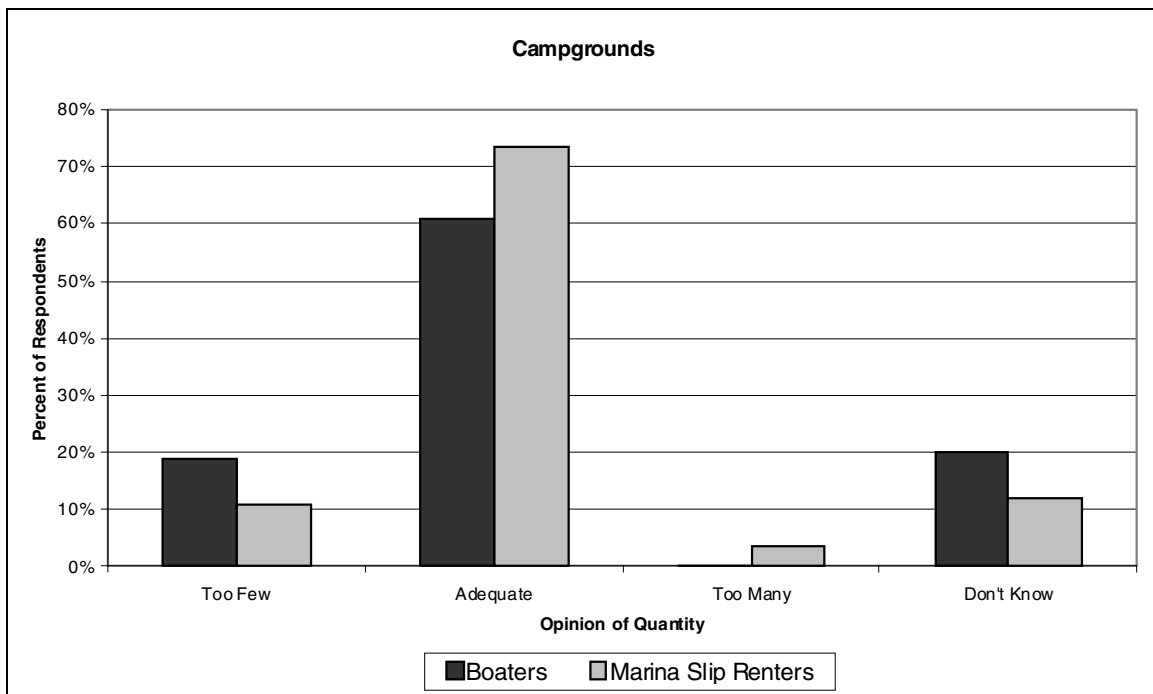


Figure 6. Opinion regarding number of campgrounds.

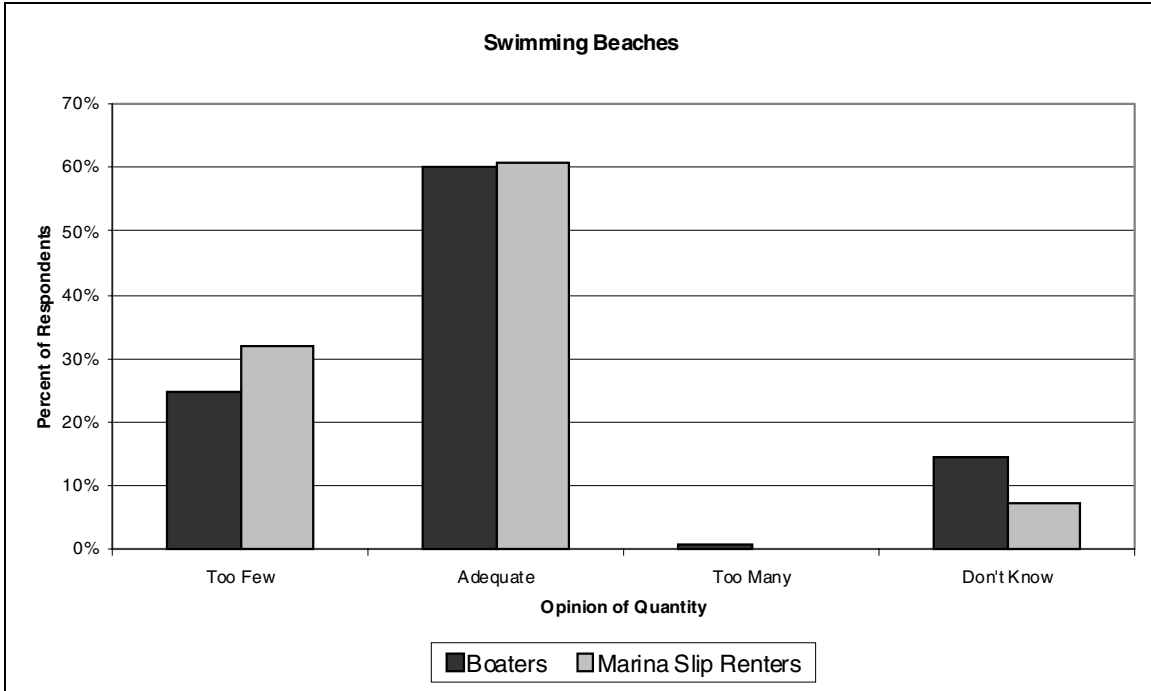


Figure 7. Opinion regarding number of swimming beaches.

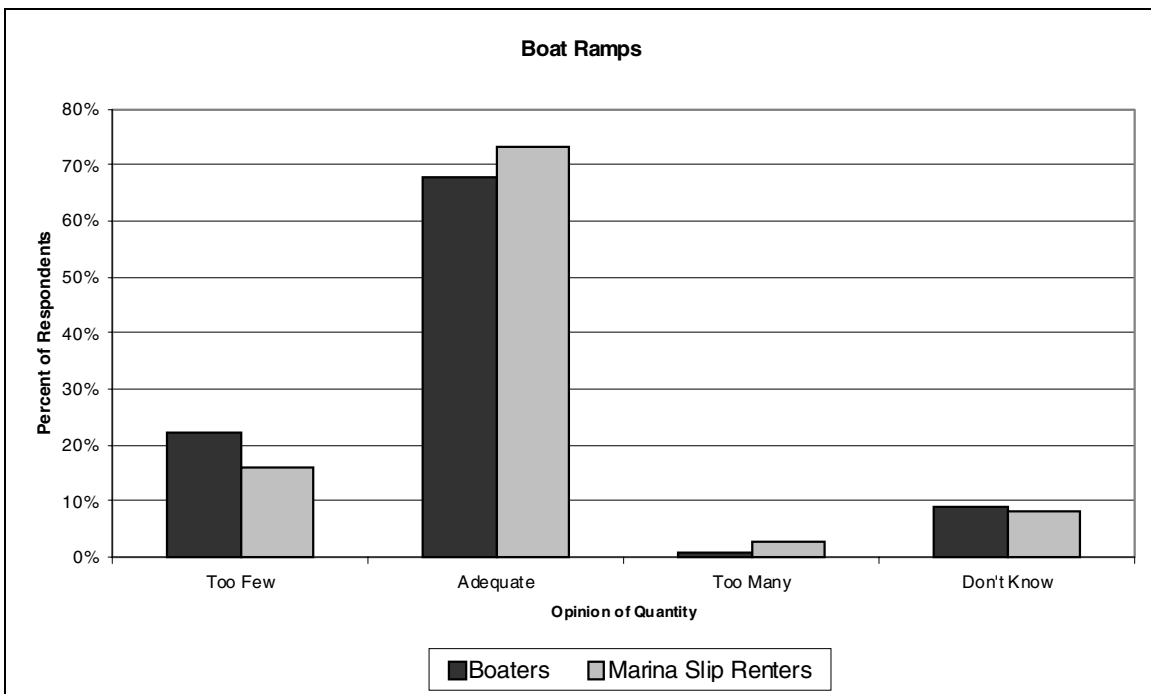


Figure 8. Opinion regarding number of boat ramps.

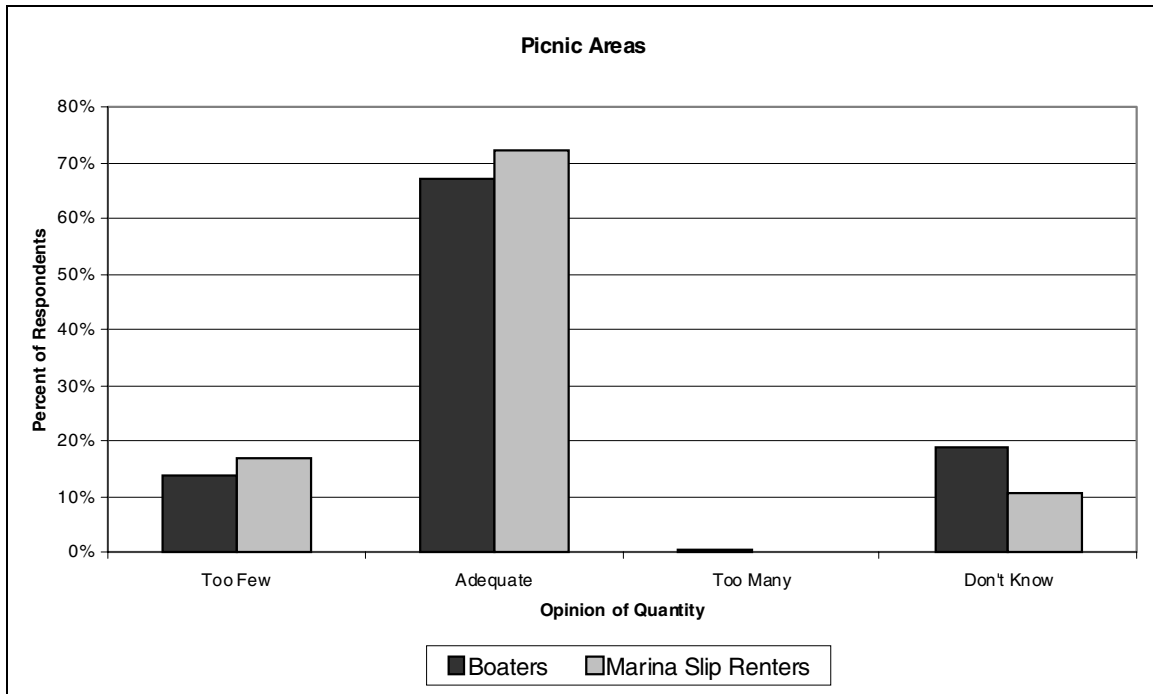


Figure 9. Opinion regarding number of picnic areas.

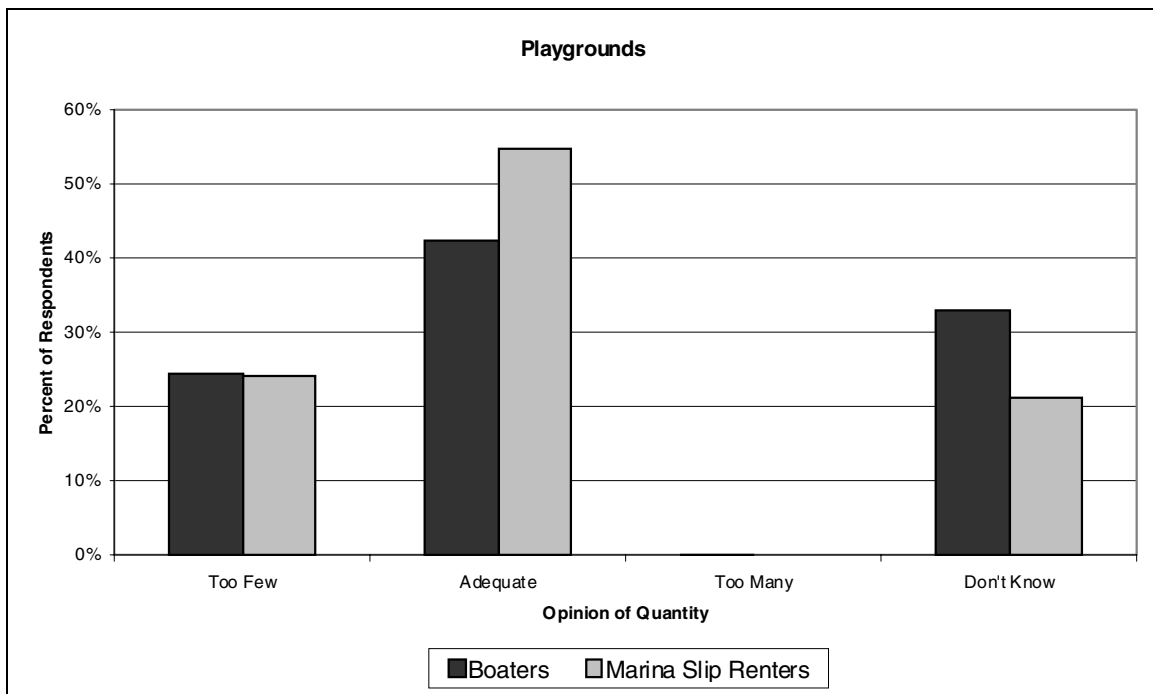


Figure 10. Opinion regarding number of playgrounds.

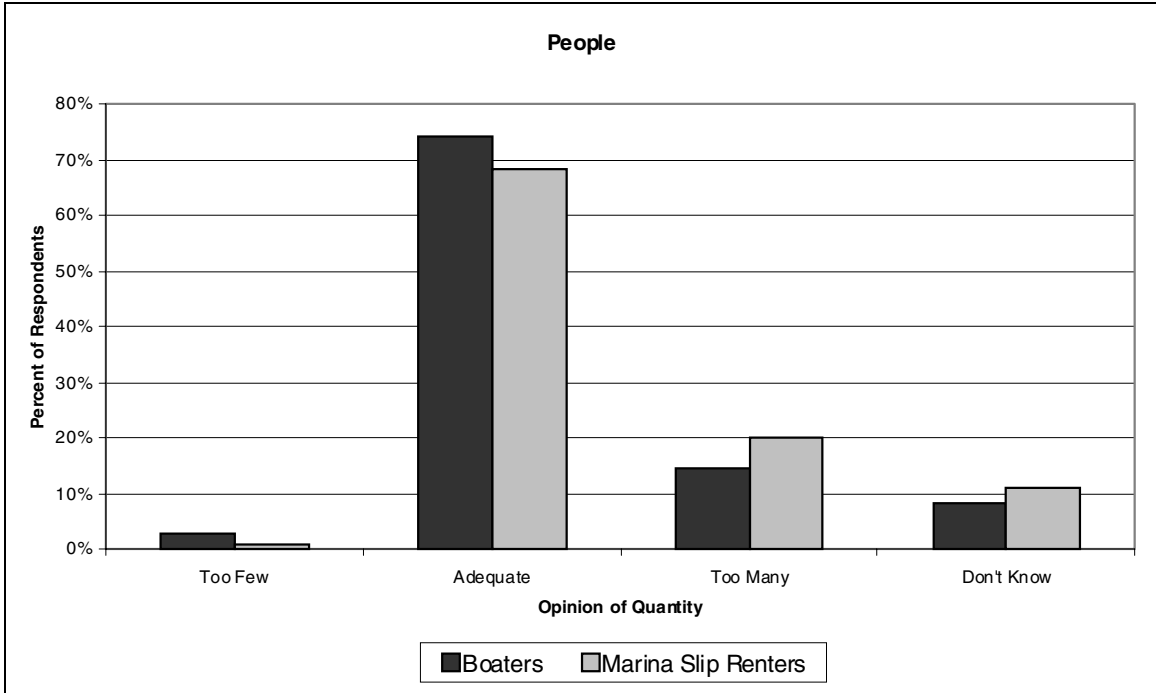


Figure 11. Opinion regarding number of people.

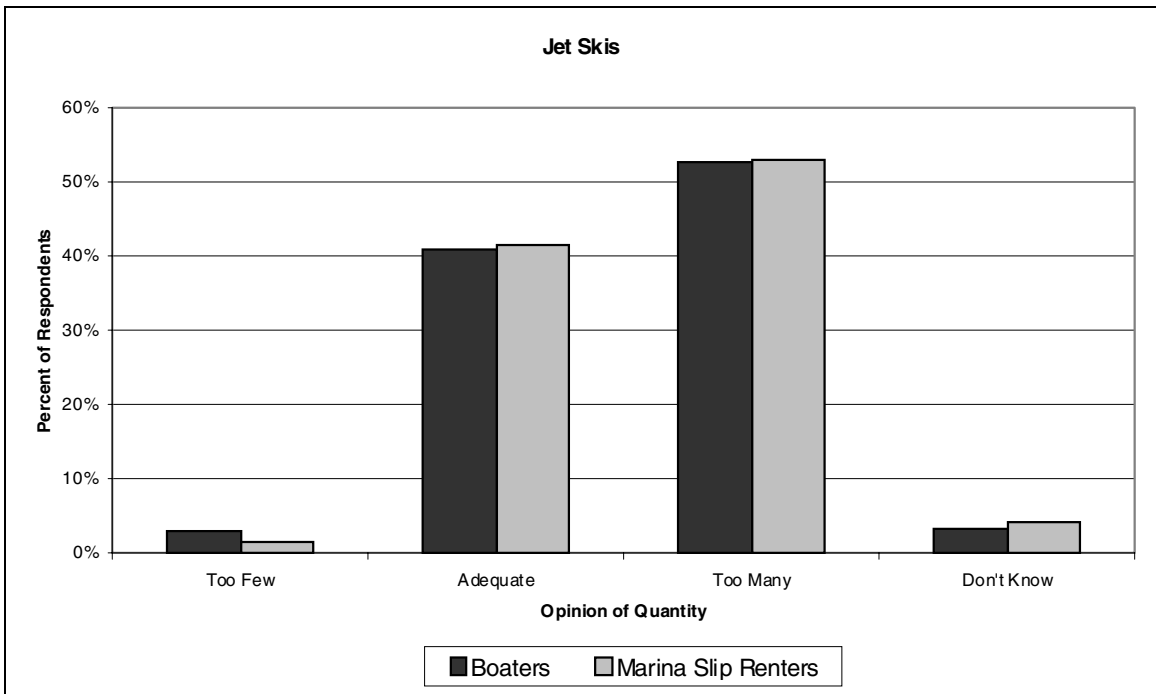


Figure 12. Opinion regarding number of jet skis.

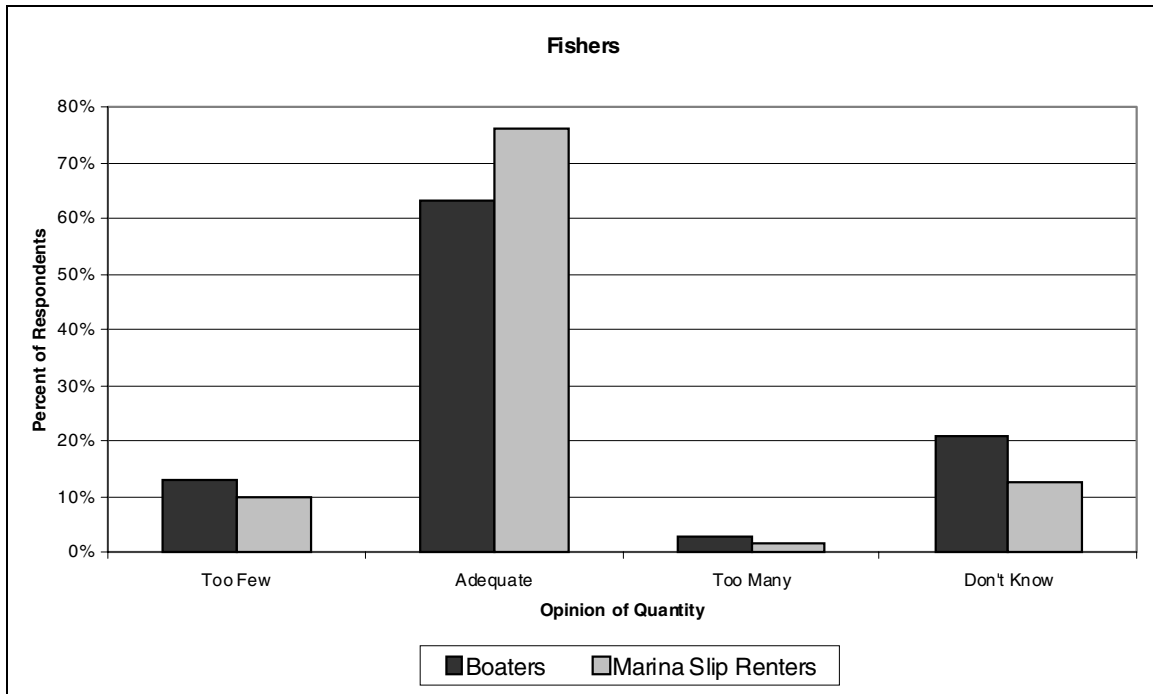


Figure 13. Opinion regarding number of fishers.

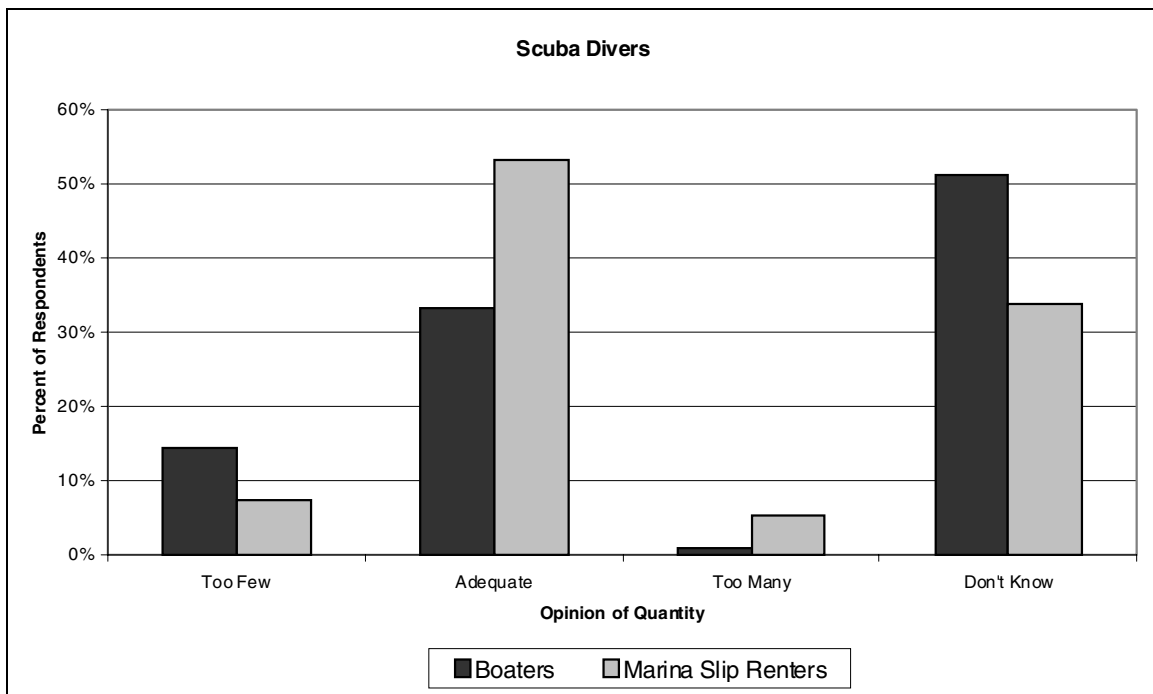


Figure 14. Opinion regarding number of scuba divers.

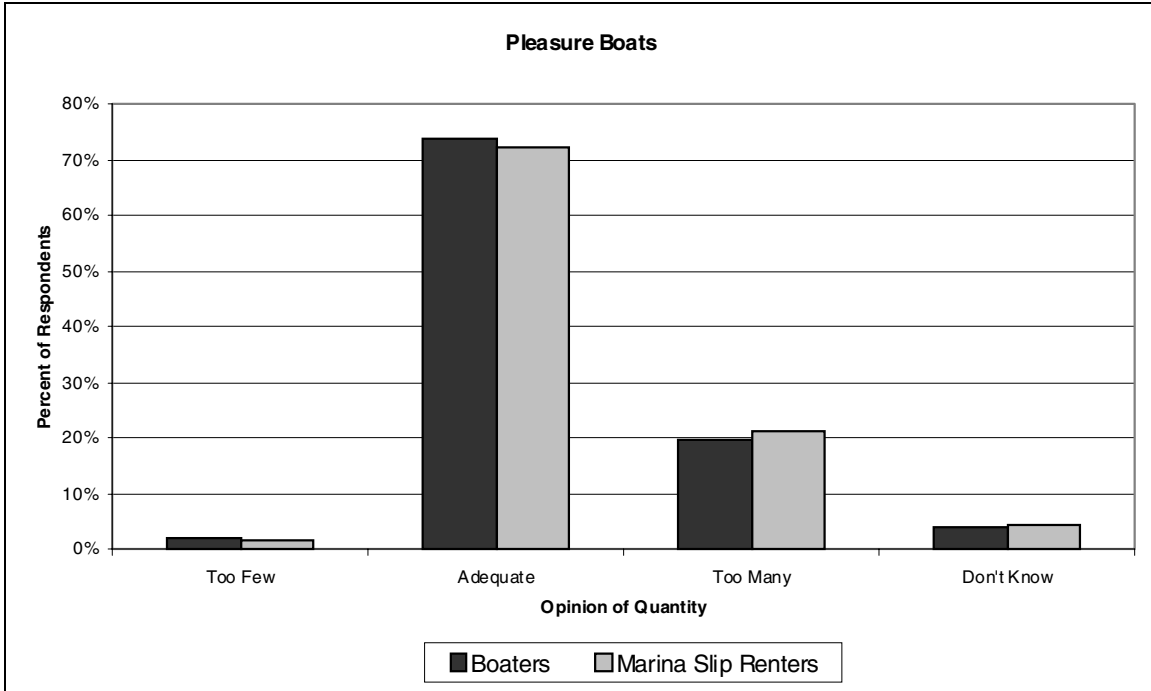


Figure 15. Opinion regarding number of pleasure boaters.

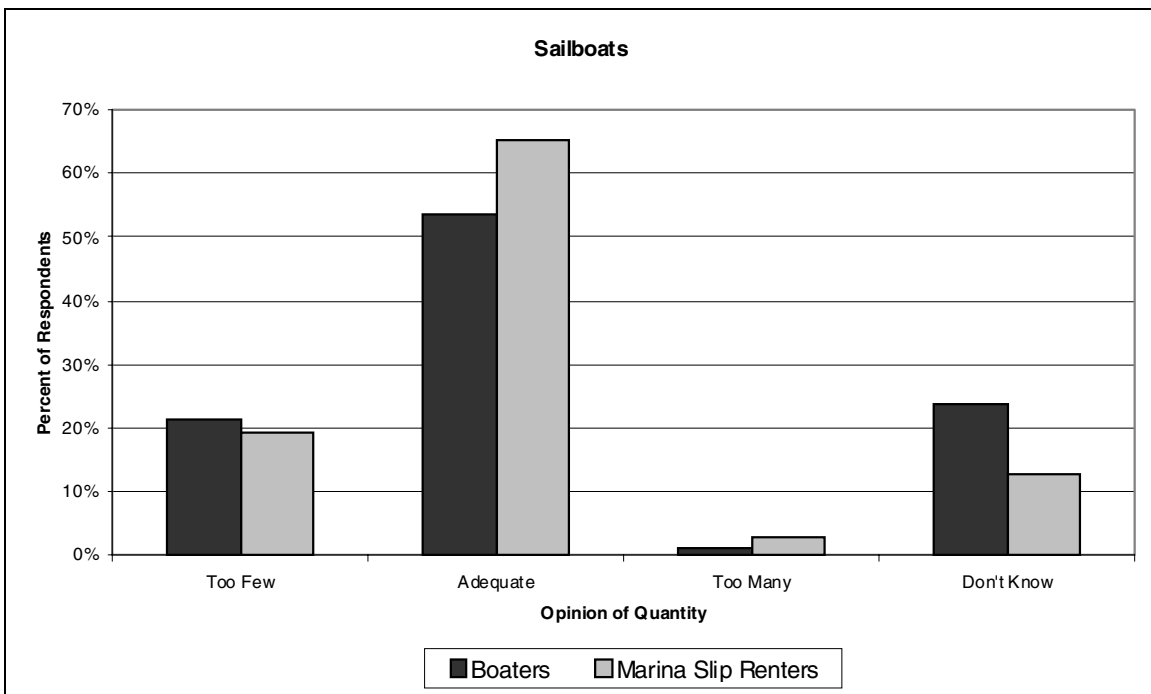


Figure 16. Opinion regarding number of sailboats.

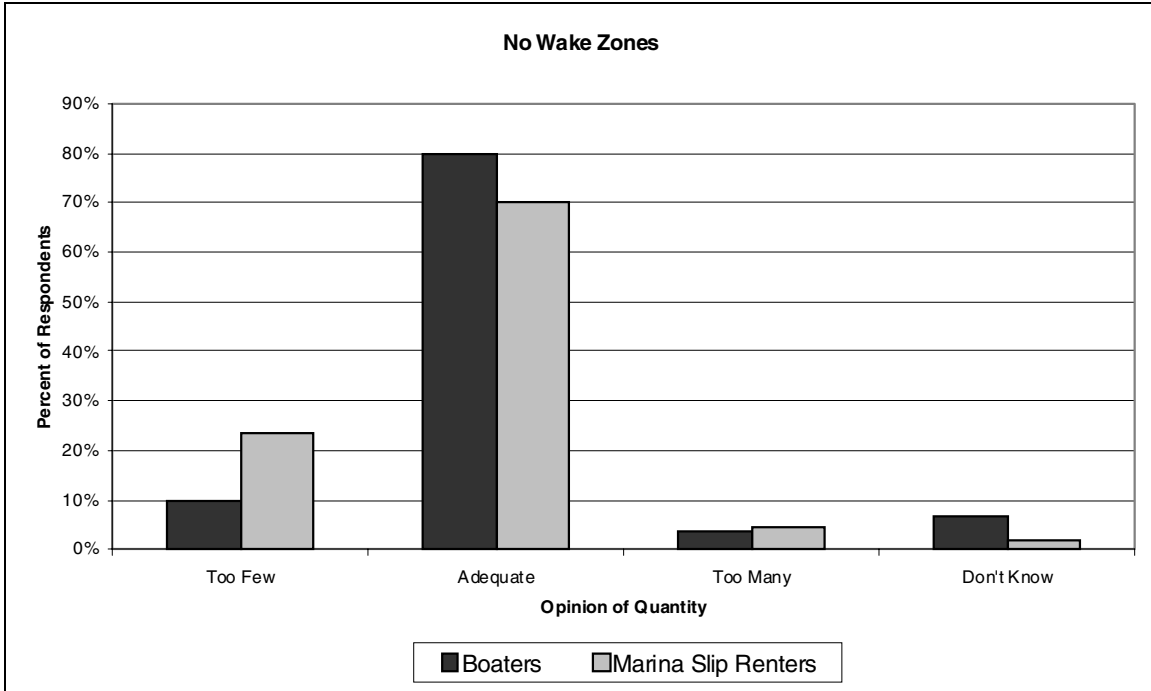


Figure 17. Opinion regarding number of no wake zones.

Table 17. Responses to Questions about Facilities, Private Docks, and Shoreline Vegetation.

	Strongly Disagree			Disagree			Neutral			Agree			Strongly Agree		
	Btr ^a	MSR ^a	AL ^a	Btr	MSR	AL	Btr	MSR	AL	Btr	MSR	AL	Btr	MSR	AL
“There are an adequate number of facilities on the lake”	23	7	8	123	18	18	123	26	22	323	48	54	26	13	27
“Private docks interfere with my use of the lake”	78	21	35	390	42	38	103	25	30	28	12	17	18	11	7
“Facilities at the lake are adequately maintained”	7	5	4	28	16	5	74	18	26	465	61	73	41	12	17
“Lakefront homeowners should be allowed to clear underbrush along the shoreline”	44	28	30	119	16	8	117	7	10	287	31	38	91	29	43
“Lakefront homeowners should be allowed to clear trees along the shoreline”	74	41	49	187	22	25	123	13	17	181	22	14	51	14	23
“There are too many private docks on the lake”	60	20	21	278	32	30	210	37	41	49	15	21	18	8	14

^a Btr = respondents to boater exit surveys, n = 618; MSR = marina slip renters, n = 112; AL = adjacent landowners; n = 128.

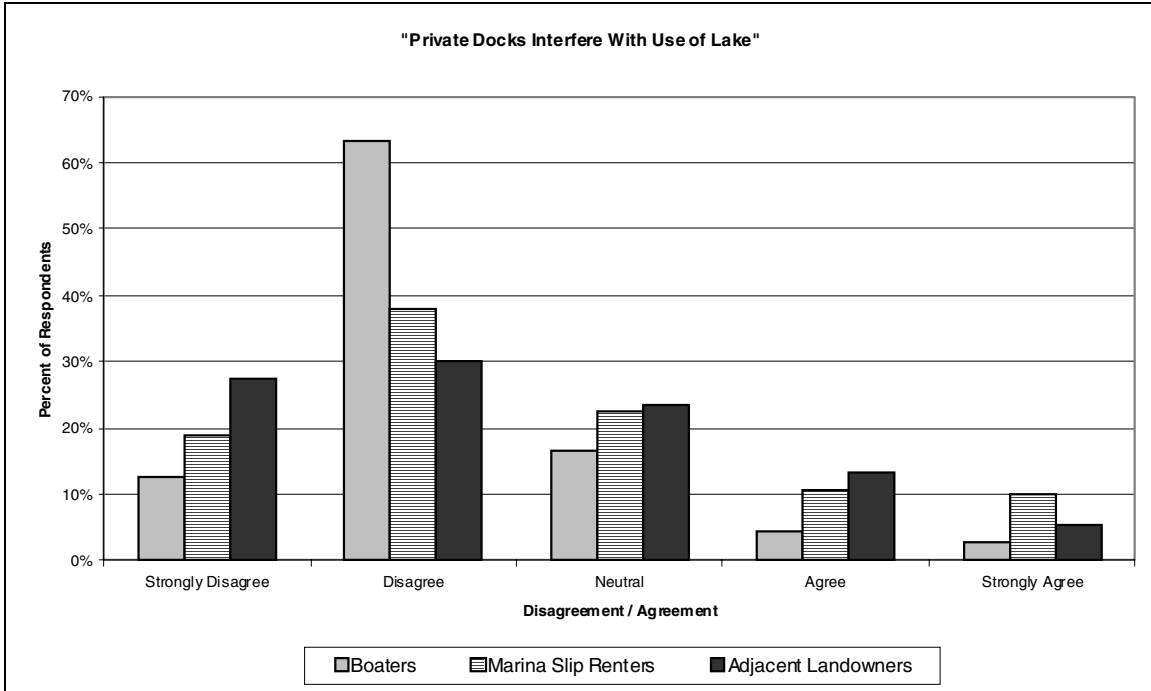


Figure 18. Opinion regarding interference of private docks.

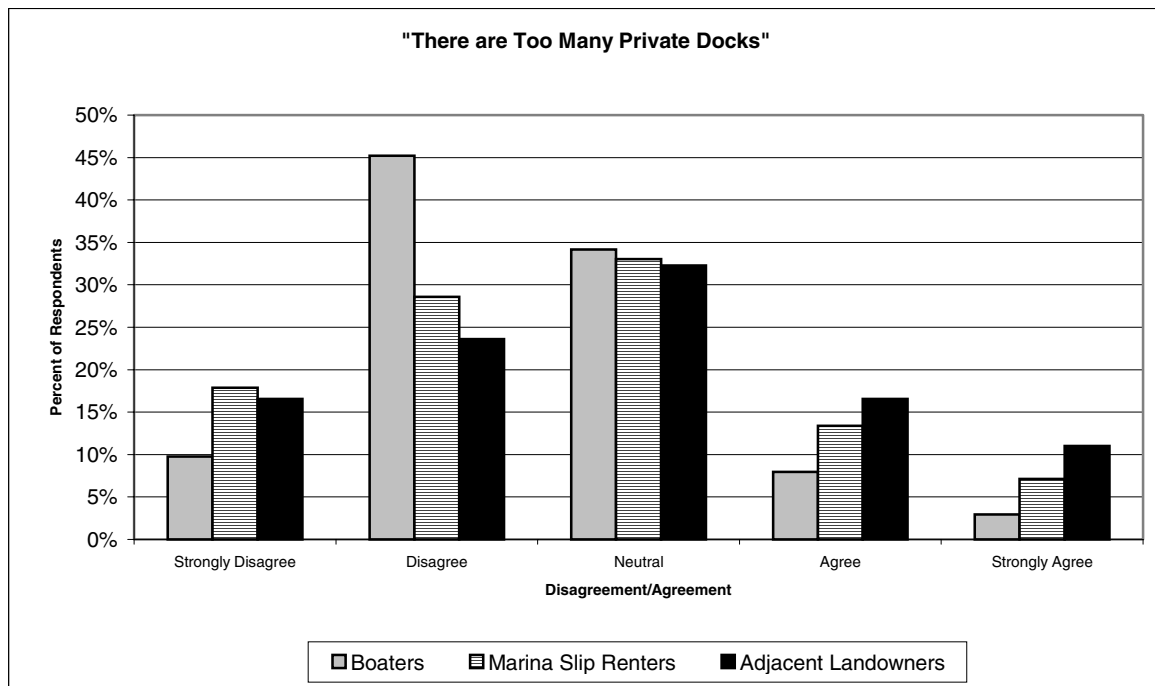


Figure 19. Opinion regarding number of private docks.

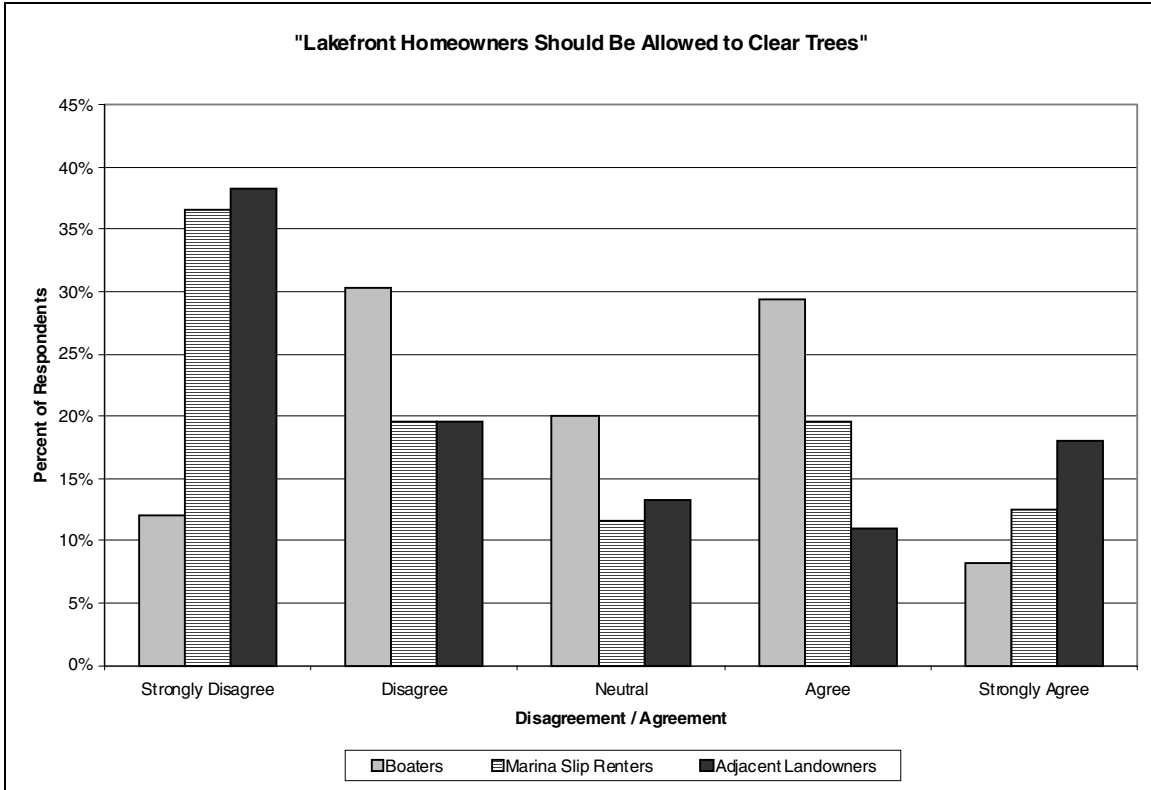


Figure 20. Opinion regarding clearing of trees.

opinion among boaters, marina slip renters, and adjacent landowners about whether lakefront homeowners should be allowed to clear trees along the shoreline (Microsoft Excel Chitest value = 1.3E-17).

A similar statement read, “Lakefront homeowners should be allowed to clear underbrush along the shoreline.” The distribution of responses to this statement differs from that for responses to the statement concerning clearing trees. However, the pattern of responses among marina slip renters and adjacent landowners is again similar and differs from that of surveyed boaters. (The data are presented graphically in Figure 21.) Marina slip renters and adjacent landowners most commonly agreed or strongly agreed with the statement, and smaller numbers in each group strongly disagreed. Agreement with the statement was slightly less among marina slip renters than among adjacent landowners, and this can be seen in slightly stronger disagreement with the statement among marina slip renters than among adjacent landowners. Approximately equal numbers of respondents in each group were neutral about the statement. Among surveyed boaters, the most common response was agreement. The numbers of surveyed boaters who disagreed, were neutral, or strongly agreed with the statement were roughly equivalent. The data indicate a significant difference in opinion among boaters, marina slip renters, and adjacent landowners about whether lakefront homeowners should be allowed to clear underbrush along the shoreline (Microsoft Excel Chitest value = 1.13E-19).

The data also indicate a significant difference in opinion among boaters, marina slip renters, and adjacent landowners about whether there is an adequate number of facilities on the lake

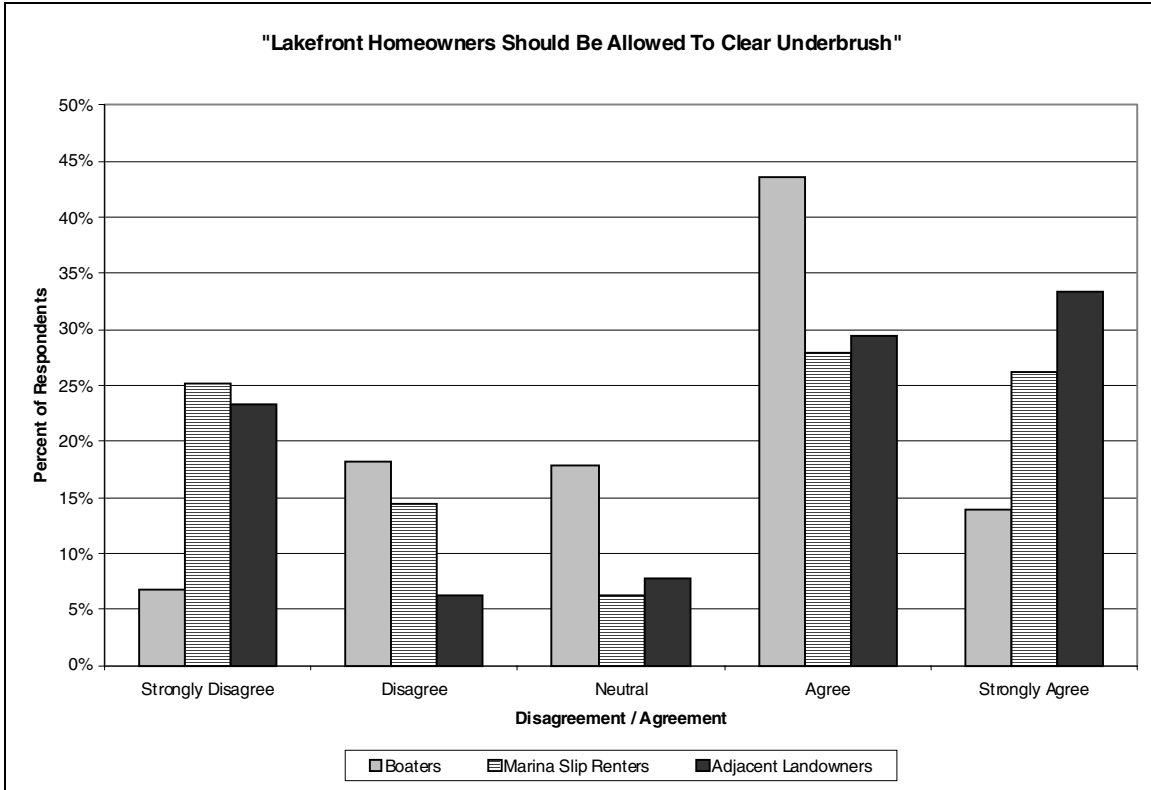


Figure 21. Opinion regarding clearing of underbrush.

(Microsoft Excel Chitest value = 2.68E-8) and whether facilities are adequately maintained on the lake (Microsoft Excel Chitest value = 2.84E-7) (Table 17).

The third management question asked boaters to indicate to what extent they felt issues at the lake were problems on a scale of *not a problem* to *very serious problem*. The results for this question are tabulated in Table 18 and presented graphically in Figures 22 through 33. The most common response among all three groups was the option “not a problem.” For most issues, the most common pattern of responses was stating that an issue was not a problem, with decreasing numbers of respondents choosing each of the subsequent response options. This pattern held for all issues among surveyed boaters. The patterns for the issues “litter on banks” (Figure 27) and “litter in water” (Figure 28) were different among marina slip renters and adjacent landowners, who stated that these were slight problems more commonly than they said they were not problems. Marina slip renters and adjacent landowners also responded to “people being inconsiderate” most commonly by stating that it was a slight problem (Figure 31). Marina slip renters were fairly equally divided among “not a problem,” “slight problem,” and “moderate problem” concerning boats speeding (Figure 32). A slightly higher percentage of adjacent landowners responded that boats speeding was a serious problem than stated that it was not a problem; about 10 percent of both marina slip renters and adjacent landowners stated that boats speeding was a very serious problem. Marina slip renters and adjacent landowners responded that crime was a slight problem as often as they stated that it was not a problem (Figure 33).

	Not a Problem			Slight Problem			Moderate Problem			Serious Problem			Very Serious Problem		
	Btr ^a	MSR ^a	AL ^a	Btr	MSR	AL	Btr	MSR	AL	Btr	MSR	AL	Btr	MSR	AL
Erosion of Banks	441	62	59	116	24	30	37	19	21	5	3	8	4	3	1
Obstructions in the Water	432	50	56	117	30	42	41	20	15	13	9	6	9	2	3
Overhanging Trees/ Branches	565	89	98	33	12	12	11	7	7	1	2	3	1	0	1
Muddy Water	533	78	78	61	23	27	12	8	12	2	1	3	1	2	3
Water Pollution	489	67	56	84	31	32	25	6	21	4	4	9	4	4	5
Litter on the Banks	393	29	28	160	52	44	36	18	32	15	10	13	6	2	6
Litter in the Water	408	33	40	150	53	46	38	16	22	10	5	9	5	4	5
Human Body Waste	522	66	60	49	23	27	18	10	16	9	0	10	8	5	5
People Shouting and Yelling	499	64	53	76	19	29	27	14	26	7	4	11	2	0	3
People Being Inconsiderate	367	30	26	151	38	39	59	24	29	25	10	18	12	9	9
Boats Speeding	332	26	19	147	30	31	83	27	32	33	14	27	16	14	15
Crime	489	35	48	72	40	44	31	19	25	8	10	4	6	6	1

^a Btr = boater from exit survey, n = 614; MSR = marina slip renter (mailed survey), n = 113; AL = adjacent landowner (mailed survey), n = 122.

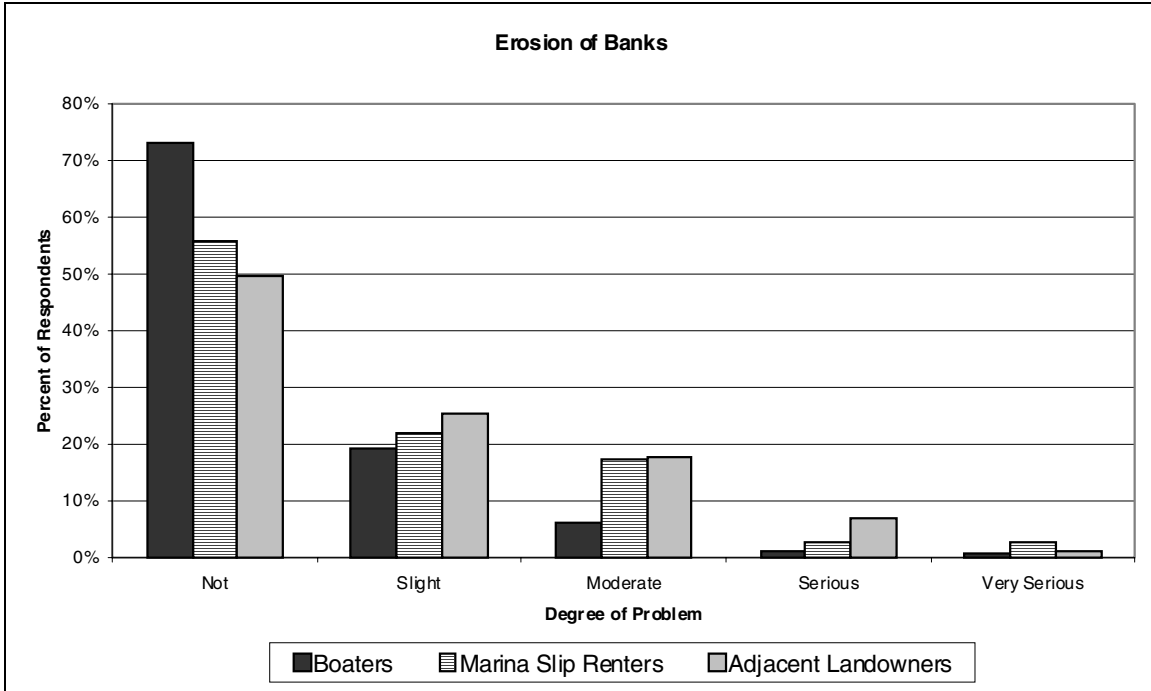


Figure 22. Opinion regarding bank erosion.

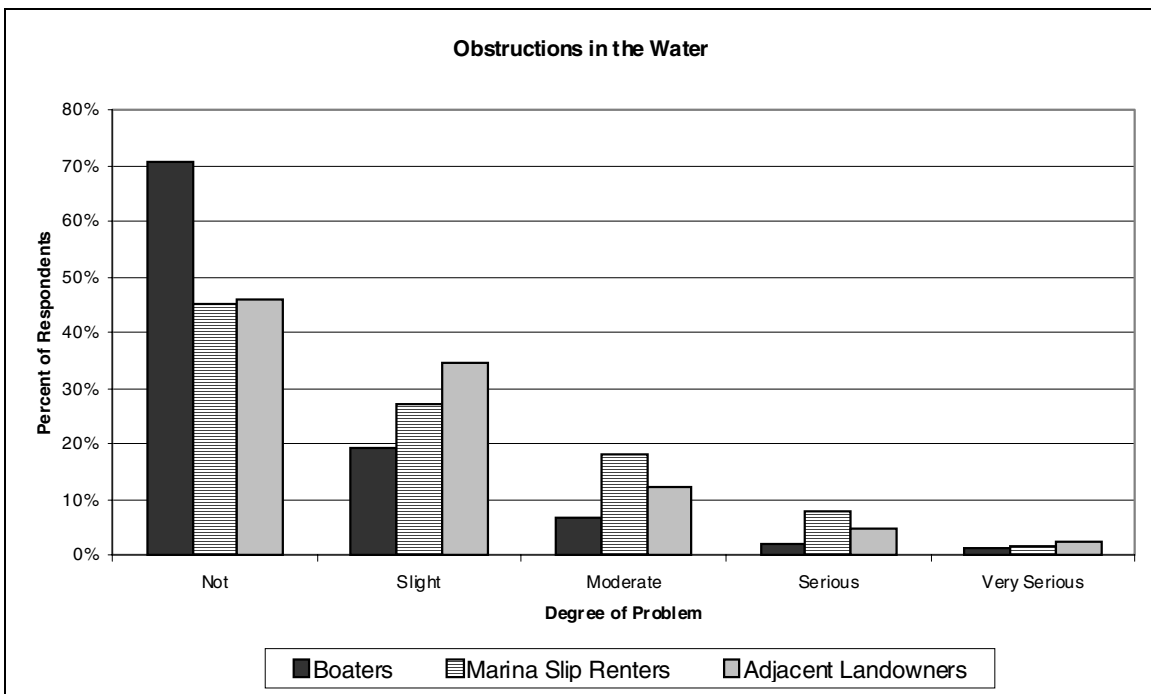


Figure 23. Opinion regarding obstructions in the water.

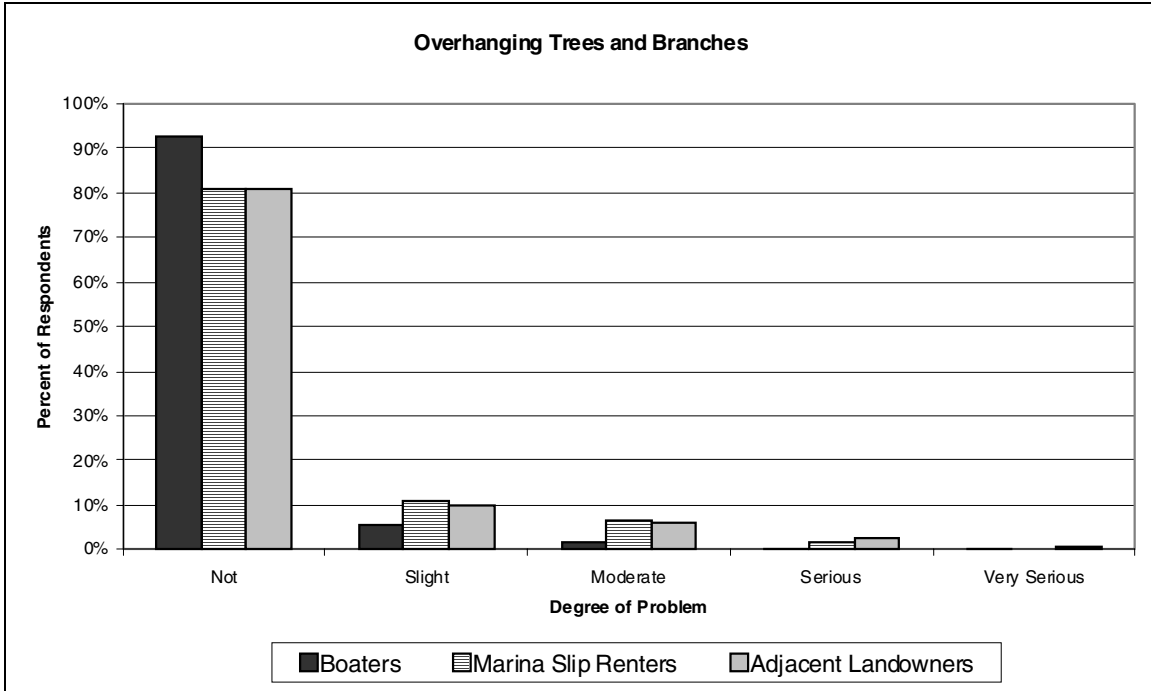


Figure 24. Opinion regarding overhanging trees and branches.

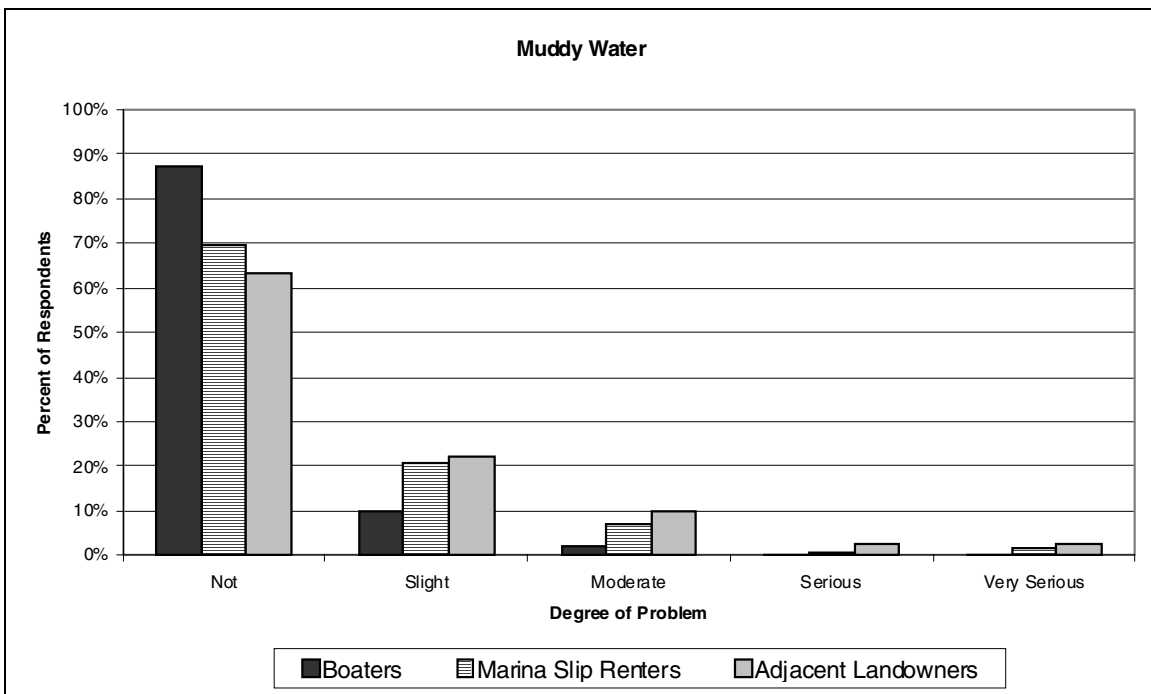


Figure 25. Opinion regarding muddy water.

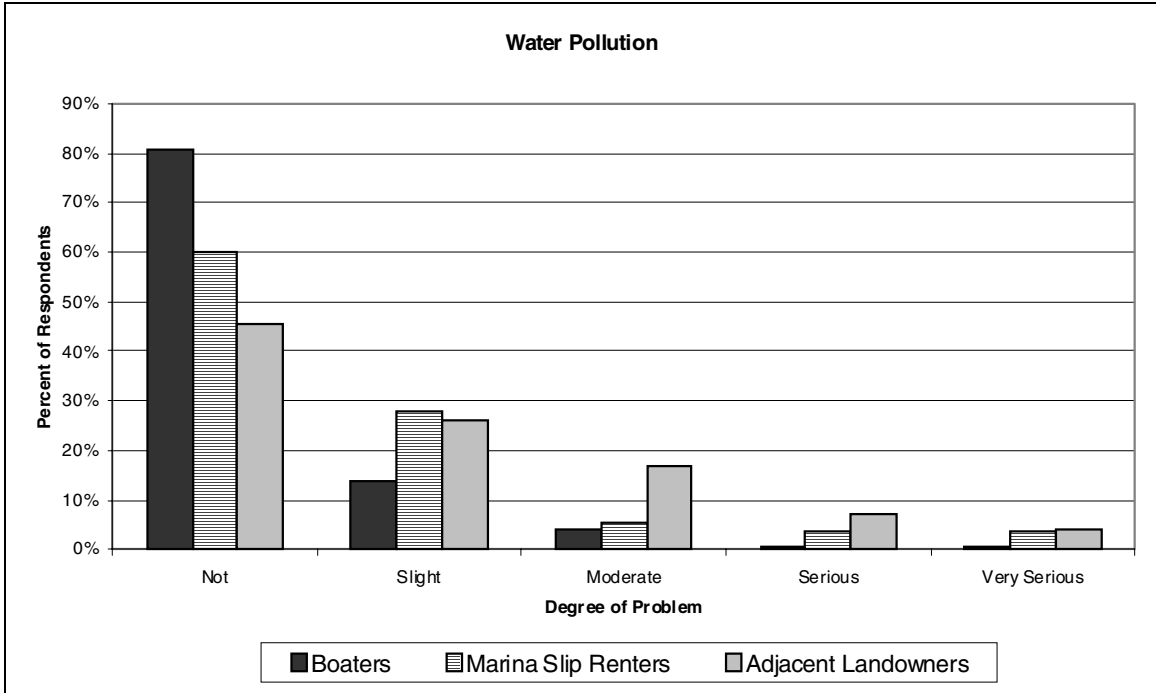


Figure 26. Opinion regarding water pollution.

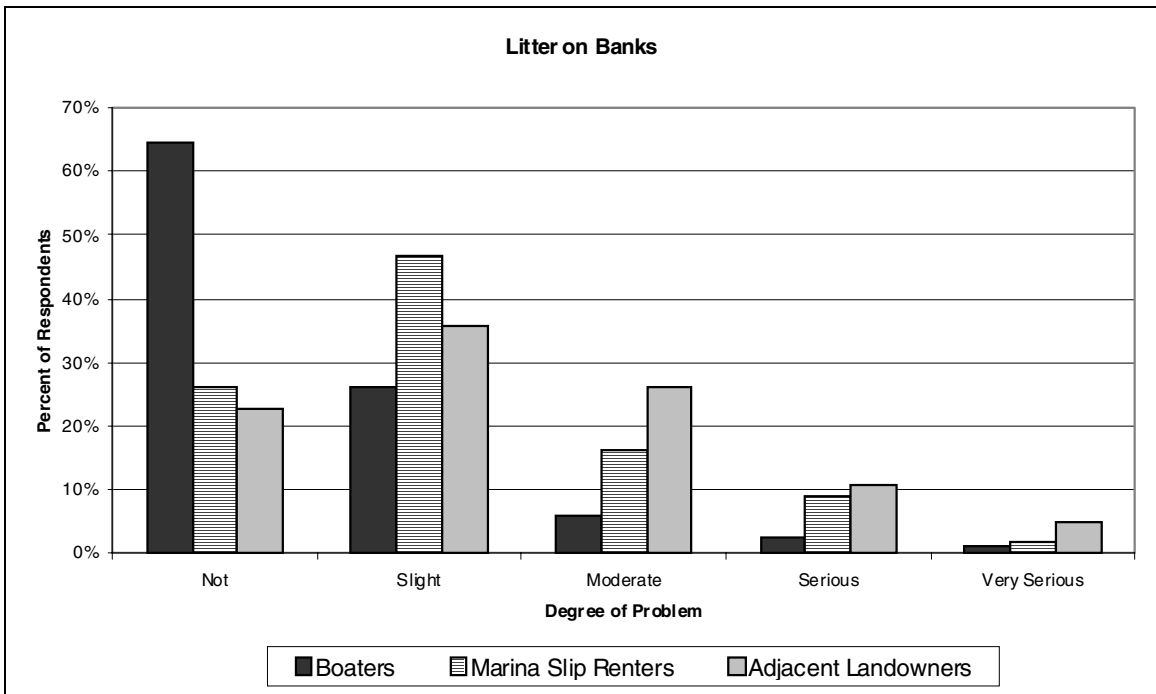


Figure 27. Opinion regarding litter on banks.

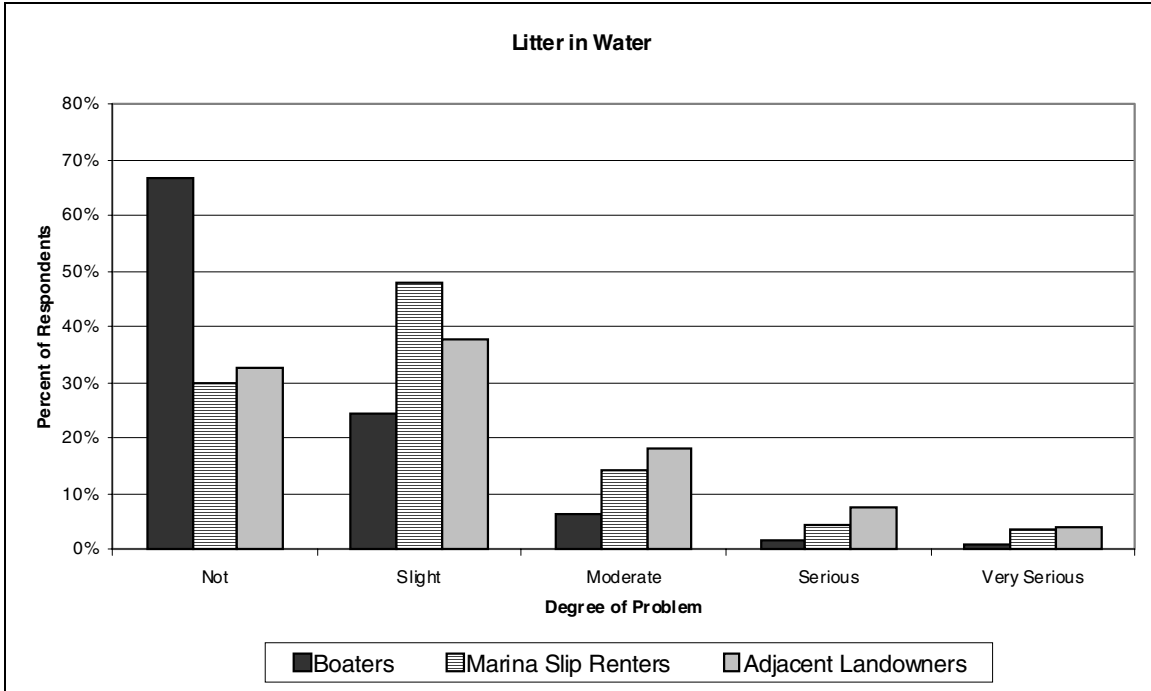


Figure 28. Opinion regarding litter in water.

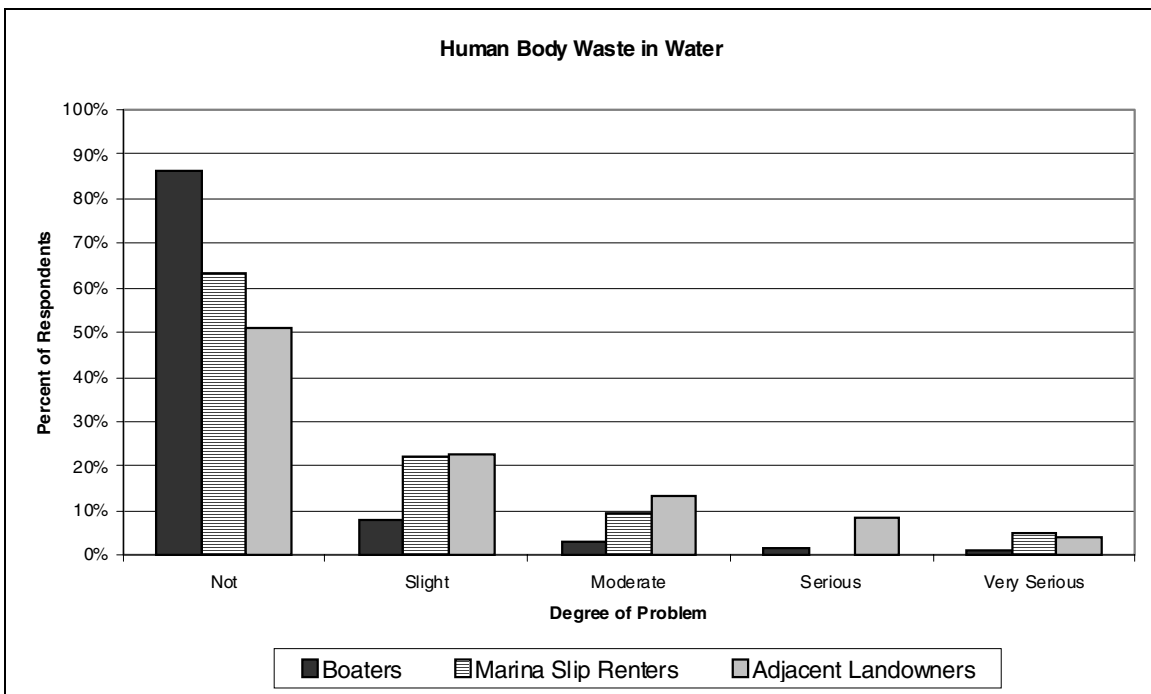


Figure 29. Opinion regarding human body waste in water.

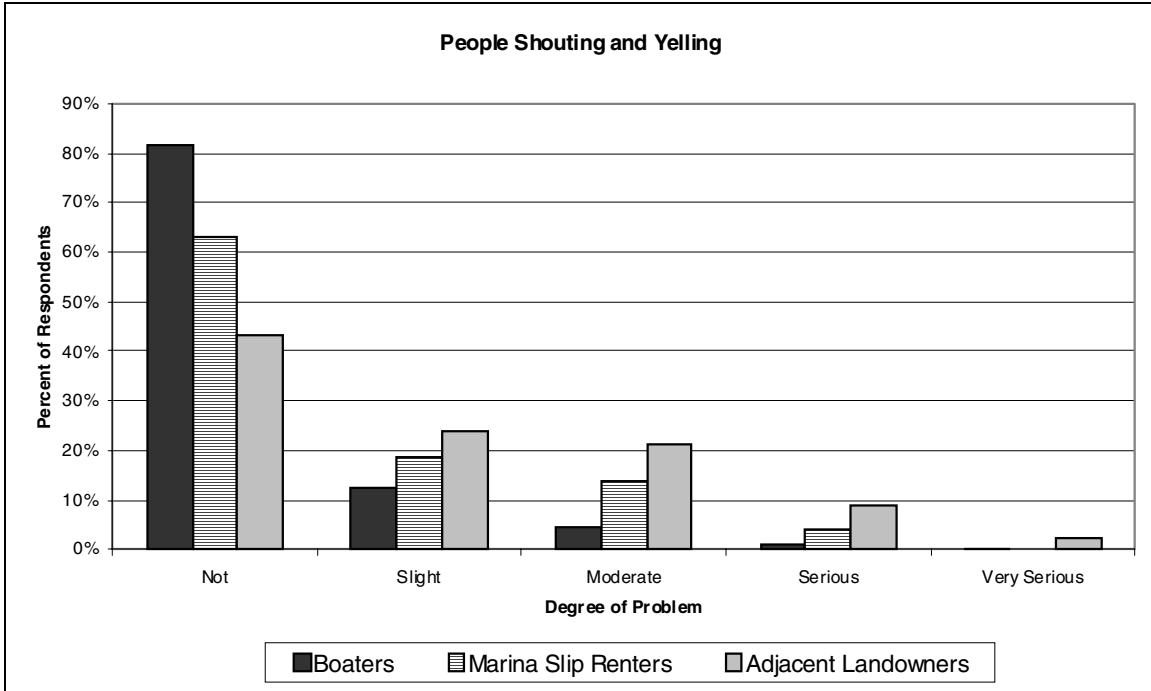


Figure 30. Opinion regarding people yelling and shouting.

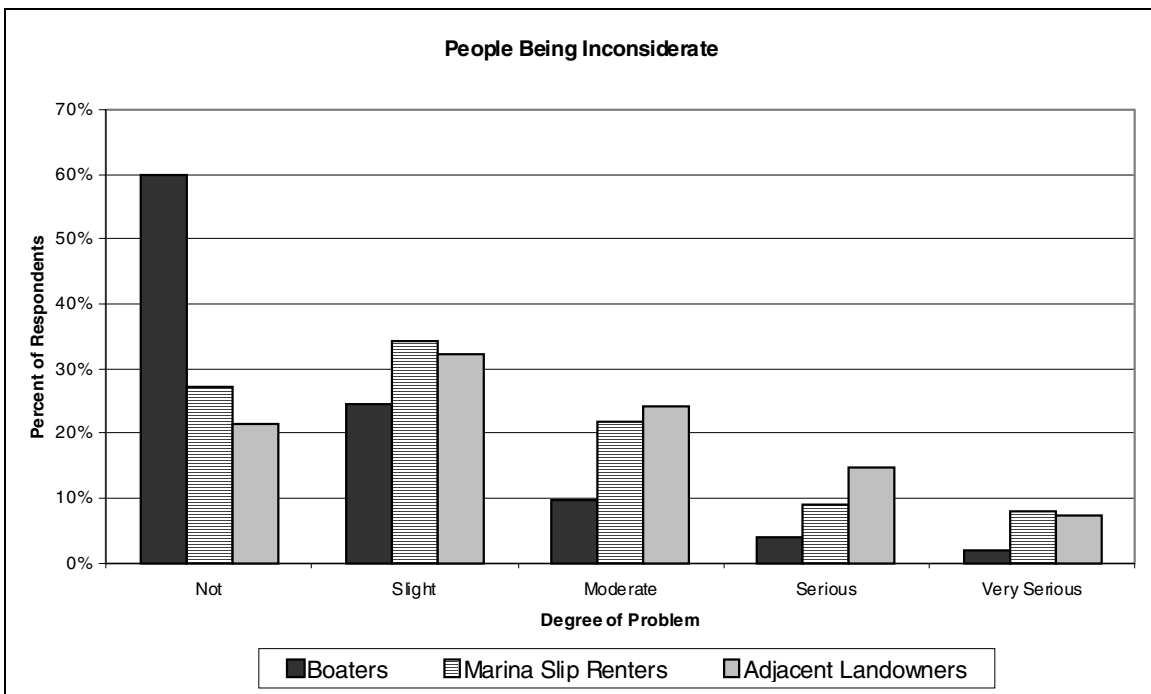


Figure 31. Opinion regarding people being inconsiderate.

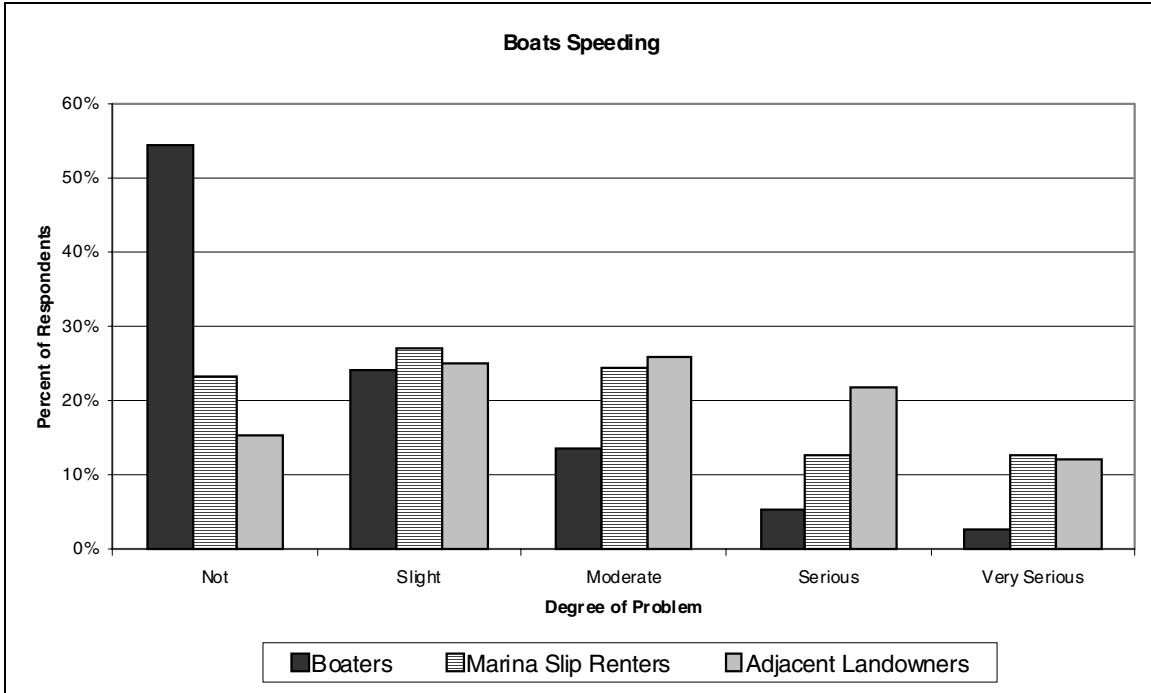


Figure 32. Opinion regarding boats speeding.

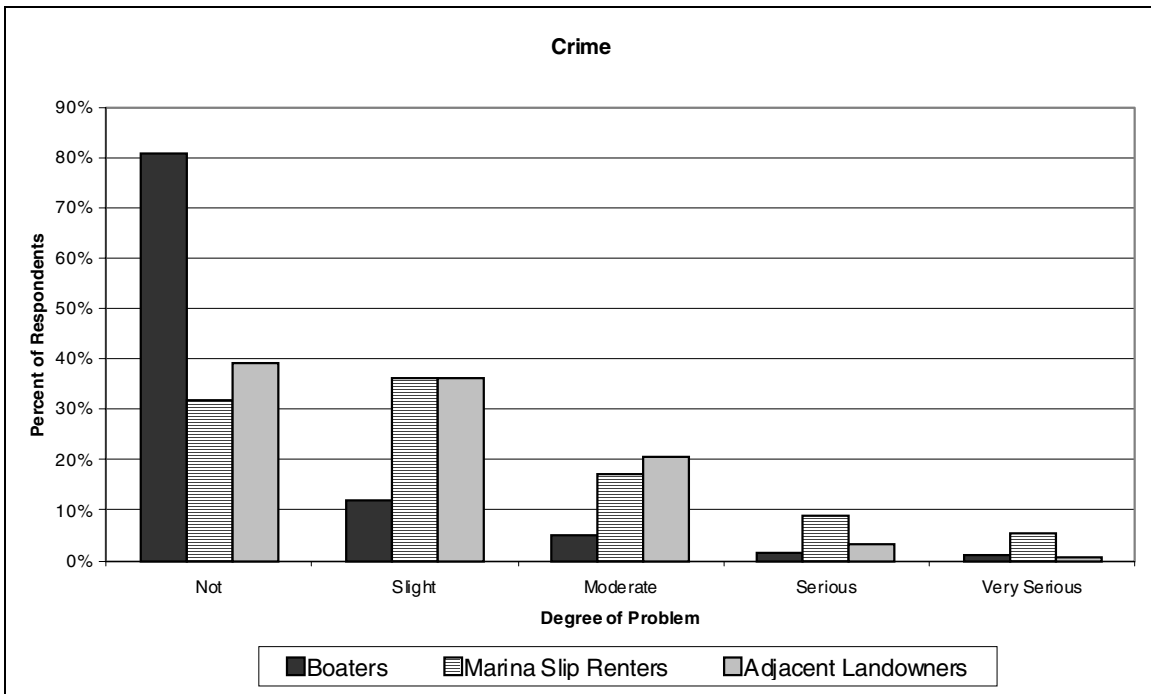


Figure 33. Opinion regarding crime.

The data indicate a significant difference in opinion about all management issues inquired about on the survey among boaters, marina slip renters, and adjacent landowners. The management issues inquired about and their respective Microsoft Excel Chitest values are provided below.

- Erosion: 1.22E-9
- Obstructions in the water: 3.4E-9
- Overhanging trees and branches: 0.0001
- Muddy water: 1.72E-10
- Water pollution: 5.16E-18
- Litter on the banks: 1.54E-26
- Litter in the water: 4.04E-18
- Human body waste: 7.14E-19
- People shouting and yelling: 2.72E-19
- People being inconsiderate: 1.74E-19
- Boats speeding: 2.07E-23
- Crime: 1.76E-33

Quality of Visit (Parts VI and VII of the survey)

A series of questions on the surveys were meant to solicit responses about the quality of people's visits to Greers Ferry Lake. The questions requested the following information:

- Whether anything detracted from the visit to the lake (asked of surveyed boaters only).
- Where the person was when the thing that detracted, if any, occurred (surveyed boaters only).
- The frequency of hearing boat noise and how hearing boat noise affected the visit (surveyed boaters only).
- Whether the person had noticed positive or negative changes at the lake in the previous 5 years.
- How those changes, if any, had affected the person's enjoyment of the lake.
- What changes the person would like to see at the lake.
- What the person likes best about the lake.

The data collected from these questions are presented in Tables 19 through 23. The responses of surveyed boaters were, predictably, focused on things that affect a boater's visit to the lake. The most common response concerning positive changes was that docks and marinas specifically and facilities in general have improved (Table 19). Many people mentioned that facilities and the lake are cleaner, and some people mentioned an increase in law enforcement and patrolling of the lake by law enforcement personnel as a positive change. A small number of people also said that they like the campsite reservation system, and eight people used this question to indicate that they favor restrictions on installing private docks.

The responses to the question about negative changes at the lake were somewhat more diverse than the responses to the question about positive changes. Interestingly, many concerned the same issues raised as positive changes (Table 20). People stated that more private docks should be allowed, facilities were lacking or needed improvement, marinas were poorly managed, and the lake and facilities lacked cleanliness. Some people stated that they dislike the campground reservation system. Issues raised as negative changes that did not appear as positive changes included the following: too many jet skis, jet ski operators are dangerous, the lake has become

more crowded, fishing has declined, there is too much shoreline development, there is too much shoreline clearing, and the water level fluctuates too much or is maintained at too low a level.

Slightly more people stated that the changes they had noted had positively affected their visits to the lake than said that the effect had been negative (Table 21).

The question about what people like best about the lake elicited a set of common responses (Table 22). People stated that they appreciate the scenery and natural resources; the water quality, quiet coves, and size of the lake; and the quality of the facilities available at the lake. Many people stated that the convenience of the lake was a prime attractive quality.

The changes that people said they would like to see at the lake very closely paralleled the responses to the questions about positive and negative changes (Table 23). People stated that they would like to see more or improved facilities, more or fewer law enforcement patrols, more or fewer private docks, more or less vegetation clearing on the shoreline, and changes to the campground reservation and fee systems. People again said they would like to see restrictions or bans on jet skis, improved fishing or fish stocking programs, a cleaner lake, restrictions on growth at the lake, and restrictions on alcohol use at the lake. There were no overwhelmingly common responses among those who answered the question. The most common responses, regarding having more law enforcement patrols and restrictions on jet skis, were each mentioned by only 17 percent of those who responded.

	Boaters^a (n = 193)	Marina Slip Renters (n = 55)	Adjacent Landowners (n = 62)
Public docks or marinas have improved/ there are more public docks or marinas	65	0	2
Facilities or services have improved	72	33	45
Lake and facilities are cleaner	45	11	12
Like the increase in patrolling and law enforcement	20	7	11
Like the ability to reserve campsites	6	0	0
Favor restrictions on installing private docks	8	0	2
Other positive changes	27	23	28

^a Respondents to boater exit surveys.

Table 20. Negative Changes Mentioned by Greers Ferry Lake Users.

	Boaters^a (n = 151)	Marina Slip Renters (n = 68)	Adjacent Landowners (n = 76)
Too many boats/jet skis boaters/jet skiers dangerous	44	33	21
More private docks should be allowed	5	3	1
Facilities lacking or need improvement	20	12	6
Lake becoming more crowded	16	10	13
Fees/costs too high	15	3	6
Dislike campsite reservation system	14	0	6
Fishing has declined	9	5	12
Poor marina management	4	2	6
Lack of cleanliness at facilities or the lake	7	12	12
Too much shoreline development/clearing of shoreline vegetation	8	8	8
Water level fluctuates too much/is too low	12	6	2
Other negative changes	22	15	23

^a Respondents to boater exit surveys.

Table 21. Effects of Positive or Negative Changes Mentioned by Greers Ferry Lake Users.

	Boaters^a	Marina Slip Renters	Adjacent Landowners
Most common positive effects mentioned:	Increased enjoyment. Encourages more visitation and use. Feel more secure. Increases the convenience.	Easier to launch the boat. Improved camping. The lake appears to be cleaner.	Improved facilities make visits more enjoyable. Increased convenience. Lake appears cleaner.
Most common negative effects mentioned:	Decreased enjoyment. Decreased frequency of use. Fishing has declined. Costs too much. More difficult to find an isolated place. Avoid certain areas. Delays entry into parks.	Visit and use the lake less often, or at specific times. Increased feeling of being at risk while boating. More trash on and around the lake. Increased feeling of being crowded.	Decreased frequency of use. Noise on and off the lake has increased. Avoid some areas of the lake. Feel there is more danger on the lake. Snake and tick problems.

^a Respondents to boater exit surveys.

Table 22. Features Lake Users Like Best About Greers Ferry Lake.

	Boaters^a (n = 581)	Marina Slip Renters (n = 106)	Adjacent Landowners (n = 119)
Scenery/natural resources^b	157	62	59
Size of lake/atmosphere of lake^c	309	73	34
Water quality/lake attributes^d	405	66	53
Quality for recreational activities	87	28	25
Quality of facilities	28	9	16
Convenient location	100	9	20

^a Respondents to boater exit surveys.
^b Included the following responses: scenery, mountains, the view, the landscape, the shoreline, natural surroundings, etc.
^c Included the following responses: large, calm, relaxing, friendliness, meet people, alcohol-free, undeveloped, not crowded, peaceful, quiet, well-maintained, etc.
^d Included the following responses: clean water, clear water, coves, deep water, good water for skiing, wind conditions, etc.

Table 23. Changes Desired at Greers Ferry Lake.

	Boaters^a (n=409)	Marina Slip Renters (n=82)	Adjacent Landowners (n=103)
More/improved facilities or services	185	22	19
More patrols or law enforcement/ stricter laws	32	15	10
Restrictions for or no jet skis	32	21	16
No wake zones/no boat zones	-	1	7
Allow more private docks	26	7	12
Fewer private docks	5	6	2
Allow landowners to clear shoreline vegetation	13	5	17
Restrict clearing of shoreline vegetation	2	2	2
Change/eliminate the campsite reservation system	16	0	6
Improved fishing/fish stocking	20	4	18
Eliminate/reduce fees	15	2	3
Less or no alcohol allowed	3	0	1
Do not allow further growth at the lake	3	7	4
Increased cleanliness/less pollution	8	4	6
Remove underwater obstructions	4	2	1
Other desired changes^b	17	4	25

^a Respondents to boater exit surveys.
^b For example: more activities for youth, more control of animals, enforcement of water quality standards, restrict size of boats on the lake.

Effect of Distance of Permanent Residence from the Lake

The final question (other than a request for additional comments [Appendix E]) asked on the survey was the location of the permanent residence of the respondent. The responses of each of the three groups included in the survey—exiting boaters, marina slip renters, and adjacent landowners—to the individual survey questions relative to the distance of their residence from the lake was investigated using information from this last question. The purpose of this query was to see whether responses to the questions might have depended on whether a respondent lived at a distance within which daily visits to the lake might be feasible (10 or fewer miles), weekend visits might be feasible (10 to 50 miles), or only occasional visits might be feasible (more than 50 miles). The results are presented in Tables 24 through 29 and in Figures 34 through 50. Appendix F contains maps of the points of origin of visitors to Greers Ferry Lake.

This analysis was investigated only with respect to the management questions on the survey and only with respect to select issues raised in those questions. This was done because the goal was to determine whether a difference in responses due to distance of permanent residence from the lake existed and not to quantify this difference, if any, for all management issues raised in the survey. The data for this analysis are presented twice for each set of questions. The number of respondents is presented in Tables 24, 26, and 28. A second table for each set of management questions presents the data as percentages, and the data have been adjusted for the differing numbers of respondents in the three distance categories (Tables 25, 27, and 29). The data in the second table (percentages) for each set of questions show that little difference in responses is evident, and it can be concluded that the distance from the lake to the permanent residence has little influence on responses. The data for two sets of management questions are presented in the figures following the tables to provide a more visual interpretation of the data.

The data indicated a significant difference in opinion correlated with distance from the lake only with respect to whether erosion is a problem (Tables 28 and 29 and Figure 46) (Microsoft Excel Chitest value = 0.048). The significance for this issue is attributable to how the distribution of responses differs among the three groups. Ignoring the *not a problem* option, which many respondents from each group chose, the responses of the three groups vary. Of those who live less than 10 miles from the lake, most stated that erosion is a slight to moderate problem. Of those who live 10 to 50 miles from the lake, the response *slight problem* far outweighed *moderate problem*, and no person from this group chose *very serious problem*. Of those who live more than 50 miles from the lake, it is significant that three respondents said that they thought erosion was a very serious problem. No significant difference among the three groups was indicated with respect to opinions about other management issues analyzed; the adequacy of facilities on the lake; or the six statements concerning facilities on the lake, whether lakefront homeowners should be allowed to clear vegetation, and private docks.

Table 24. Boaters' Responses to Questions on the Quantity of Various Resources Available at Greers Ferry Lake.

	Docks			Marinas			Parking Facilities			People		
	<=10 ^a	10 to 50 ^a	>50 ^a	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Don't Know	8	27	20	4	17	16	6	10	13	9	18	21
Too Few	25	57	65	9	31	23	32	91	99	4	4	5
Adequate	44	134	125	67	173	174	41	122	106	59	159	167
Too Many	2	5	6	0	2	5	0	1	2	10	38	28
n =^b	79	223	216	80	223	218	79	224	220	82	219	221
	Pleasure Boats			PWCs			Campgrounds			Boat Ramps		
	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Don't Know	3	10	10	3	7	10	15	50	41	9	20	19
Too Few	4	4	2	5	5	4	15	44	38	16	50	47
Adequate	60	164	163	37	95	88	51	129	140	55	151	152
Too Many	13	45	46	35	115	118	0	1	1	0	1	3
n =	80	223	221	80	222	220	81	224	220	80	222	221

^a <=10, 10 to 50, and >50 = boaters who stated that their permanent residence was within 10 miles, 10 to 50 miles, and more than 50 miles of Greers Ferry Lake, respectively.

^b n (total number of respondents to the question) varies because of the number of towns within the specified distance from the lake and the number of respondents who answered the question.

Table 25. Boaters' Responses to Questions on the Quantity of Various Resources Available at Greers Ferry Lake, adjusted for n.

	Docks			Marinas			Parking			People		
	<=10 ^a	10 to 50 ^a	>50 ^a	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Don't Know	10%	12%	9%	5%	8%	7%	8%	4%	6%	11%	8%	10%
Too Few	32%	26%	30%	11%	14%	11%	41%	41%	45%	5%	2%	2%
Adequate	56%	60%	58%	84%	78%	80%	52%	54%	48%	72%	73%	76%
Too Many	3%	2%	3%	0%	1%	2%	0%	0%	1%	12%	17%	13%
	Pleasure Boats			PWCs			Campgrounds			Boat Ramps		
	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Don't Know	4%	4%	5%	4%	3%	5%	19%	22%	19%	11%	9%	9%
Too Few	5%	2%	1%	6%	2%	2%	19%	20%	17%	20%	23%	21%
Adequate	75%	74%	74%	46%	43%	40%	63%	58%	64%	69%	68%	69%
Too Many	16%	20%	21%	44%	52%	54%	0%	0%	0%	0%	0%	1%

^a <=10, 10 to 50, and >50 = boaters who stated that their permanent residence was within 10 miles, 10 to 50 miles, and more than 50 miles of Greers Ferry Lake, respectively.

Table 26. Boaters' Responses to Questions Regarding Private Docks and Shoreline Vegetation Modification at Greers Ferry Lake.

	Private Docks Interfere With Use of Lake			Lakefront Home-owners Should Be Allowed to Clear Underbrush Along the Shoreline			Lakefront Home-owners Should Be Allowed to Clear Trees Along the Shoreline			There are Too Many Private Docks on the Lake		
	<=10 ^a	10 to 50 ^a	>50 ^a	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Strongly Disagree	14	26	25	6	8	24	10	23	30	14	18	15
Disagree	43	151	137	8	33	21	26	74	58	35	112	94
Neutral	16	35	43	18	39	50	13	43	51	26	71	84
Agree	5	7	12	37	108	100	24	61	69	3	17	20
Strongly Agree	3	5	7	12	36	28	6	23	15	2	5	9
n^b	81	224	224	81	224	223	79	224	223	80	223	222

^a <=10, 10 to 50, and >50 = boaters who stated that their permanent residence was within 10 miles, 10 to 50 miles, and more than 50 miles of Greers Ferry Lake, respectively.
^b n (total number of respondents to the question) varies because of the number of towns within the specified distance from the lake and the number of respondents who answered the question.

Table 27. Boaters' Responses to Questions Regarding Private Docks and Shoreline Vegetation Modification at Greers Ferry Lake, adjusted for n.

	Private Docks Interfere With Use of Lake			Lakefront Home-owners Should Be Allowed to Clear Underbrush Along the Shoreline			Lakefront Home-owners Should Be Allowed to Clear Trees Along the Shoreline			There are Too Many Private Docks on the Lake		
	<=10 ^a	10 to 50 ^a	>50 ^a	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Strongly Disagree	17%	12%	11%	7%	4%	11%	13%	10%	13%	18%	8%	7%
Disagree	53%	67%	61%	10%	15%	9%	33%	33%	26%	44%	50%	42%
Neutral	20%	16%	19%	22%	17%	22%	16%	19%	23%	33%	32%	38%
Agree	6%	3%	5%	46%	48%	45%	30%	27%	31%	4%	8%	9%
Strongly Agree	4%	2%	3%	15%	16%	13%	8%	10%	7%	3%	2%	4%

^a <=10, 10 to 50, and >50 = boaters who stated that their permanent residence was within 10 miles, 10 to 50 miles, and more than 50 miles of Greers Ferry Lake, respectively.

Table 28. Boaters' Responses to Questions on the Severity of Problems at Greers Ferry Lake.

	Erosion of Banks			Water Pollution			Litter on Banks			People Being Inconsiderate			Boats Speeding		
	<=10 ^a	10 to 50 ^a	>50 ^a	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Not a Problem	59	161	153	68	182	170	56	152	131	50	138	130	49	121	117
Slight Problem	8	48	43	6	33	37	17	54	71	22	48	56	19	52	57
Moderate Problem	9	7	15	3	6	7	3	12	12	6	22	25	10	29	36
Serious Problem	0	3	2	0	0	2	3	3	5	1	12	5	0	17	6
Very Serious Problem	1	0	3	0	3	0	0	2	1	1	3	3	2	4	4
n =^b	77	219	216	77	224	216	79	223	220	80	223	219	80	223	220

^a <=10, 10 to 50, and >50 = boaters who stated that their permanent residence was within 10 miles, 10 to 50 miles, and more than 50 miles of Greers Ferry Lake, respectively.
^b n (total number of respondents to the question) varies because of the number of towns within the specified distance from the lake and the number of respondents who answered the question.

Table 29. Boaters' Responses to Questions on the Severity of Problems at Greers Ferry Lake, adjusted for n.

	Erosion of Banks			Water Pollution			Litter on Banks			People Being Inconsiderate			Boats Speeding		
	<=10 ^a	10 to 50 ^a	>50 ^a	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50	<=10	10 to 50	>50
Not a Problem	77%	74%	71%	88%	81%	79%	71%	68%	60%	63%	62%	59%	61%	54%	53%
Slight Problem	10%	22%	20%	8%	15%	17%	22%	24%	32%	28%	22%	26%	24%	23%	26%
Moderate Problem	12%	3%	7%	4%	3%	3%	4%	5%	5%	8%	10%	11%	13%	13%	16%
Serious Problem	0%	1%	1%	0%	0%	1%	4%	1%	2%	1%	5%	2%	0%	8%	3%
Very Serious Problem	1%	0%	1%	0%	1%	0%	0%	1%	0%	1%	1%	1%	3%	2%	2%

^a <=10, 10 to 50, and >50 = boaters who stated that their permanent residence was within 10 miles, 10 to 50 miles, and more than 50 miles of Greers Ferry Lake, respectively.

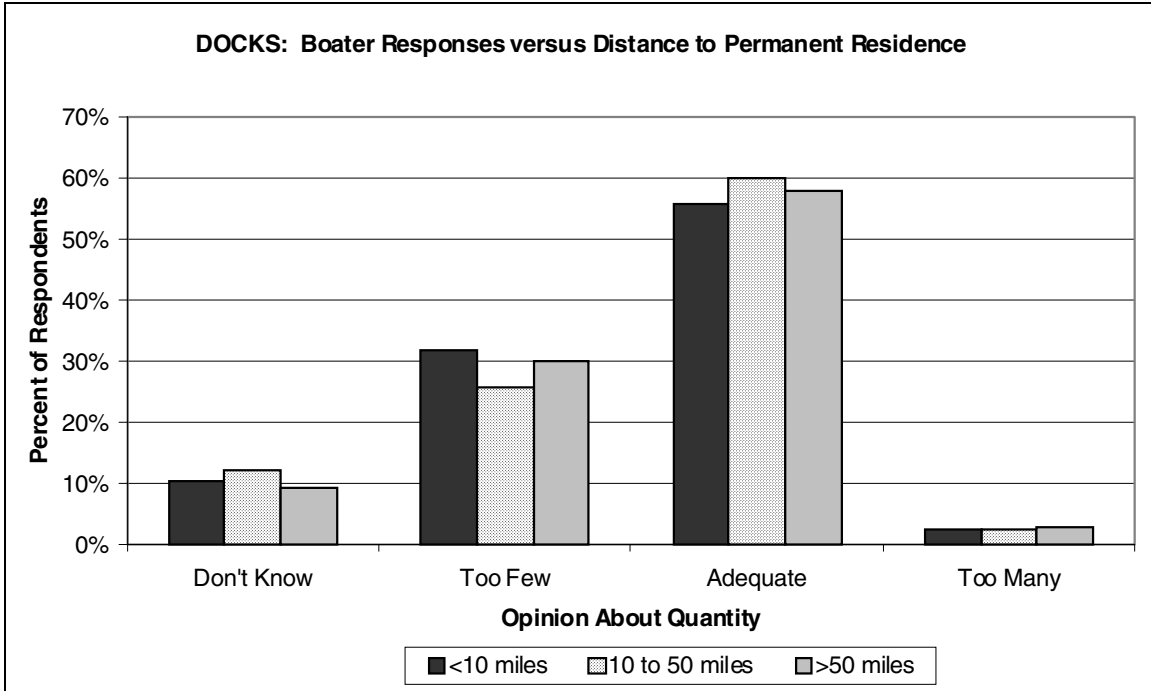


Figure 34. Opinion regarding number of docks: responses versus distance to permanent residence.

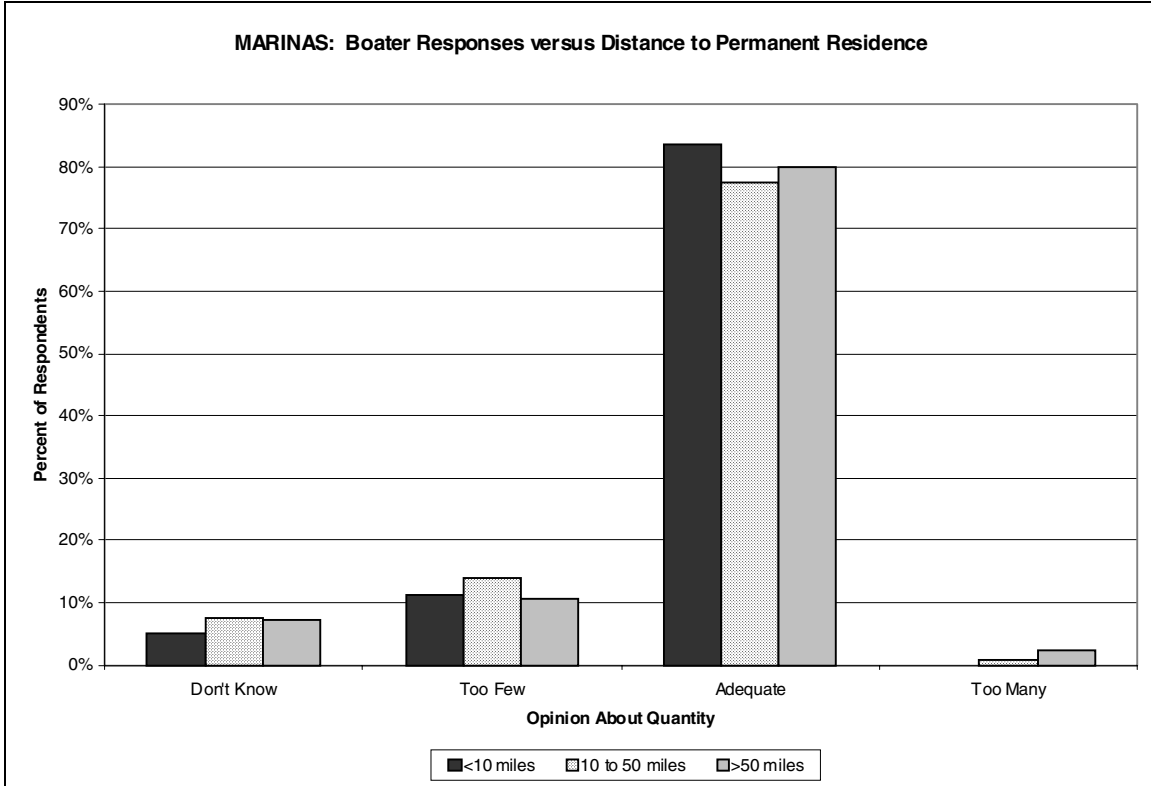


Figure 35. Opinion regarding number of marinas: responses versus distance to permanent residence.

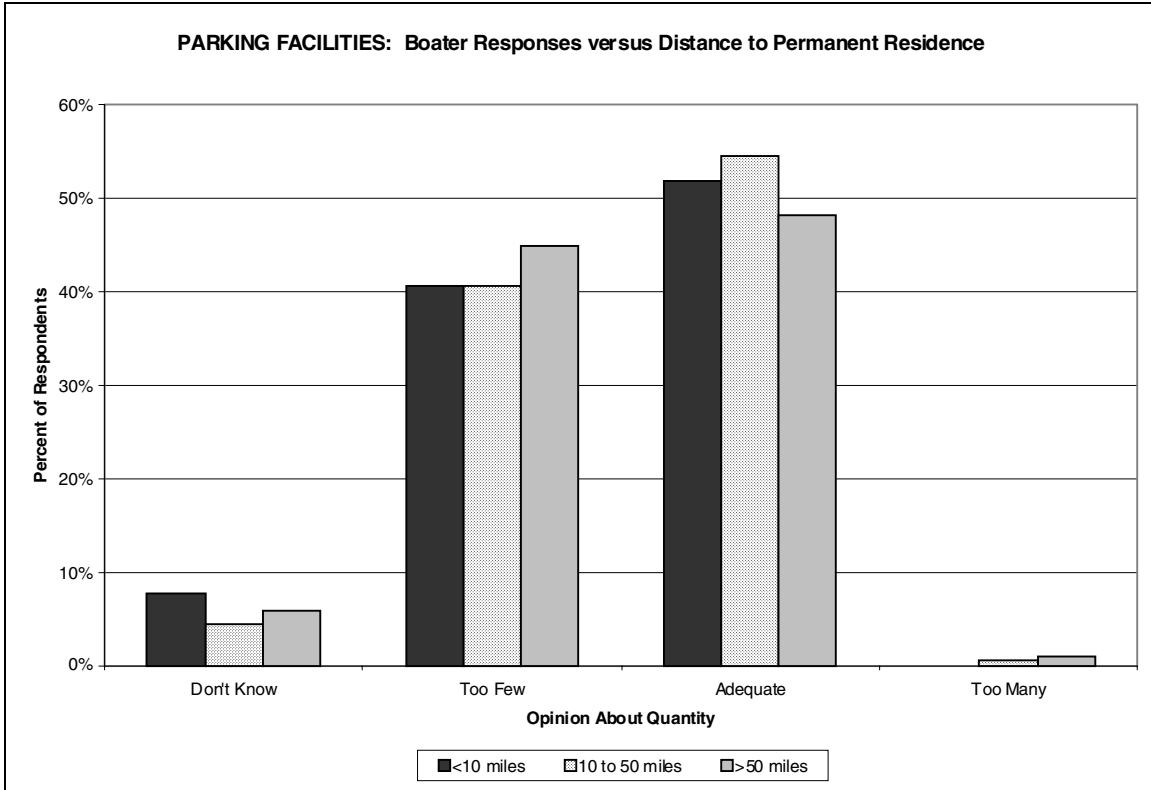


Figure 36. Opinion regarding number of parking facilities: responses versus distance to permanent residence.

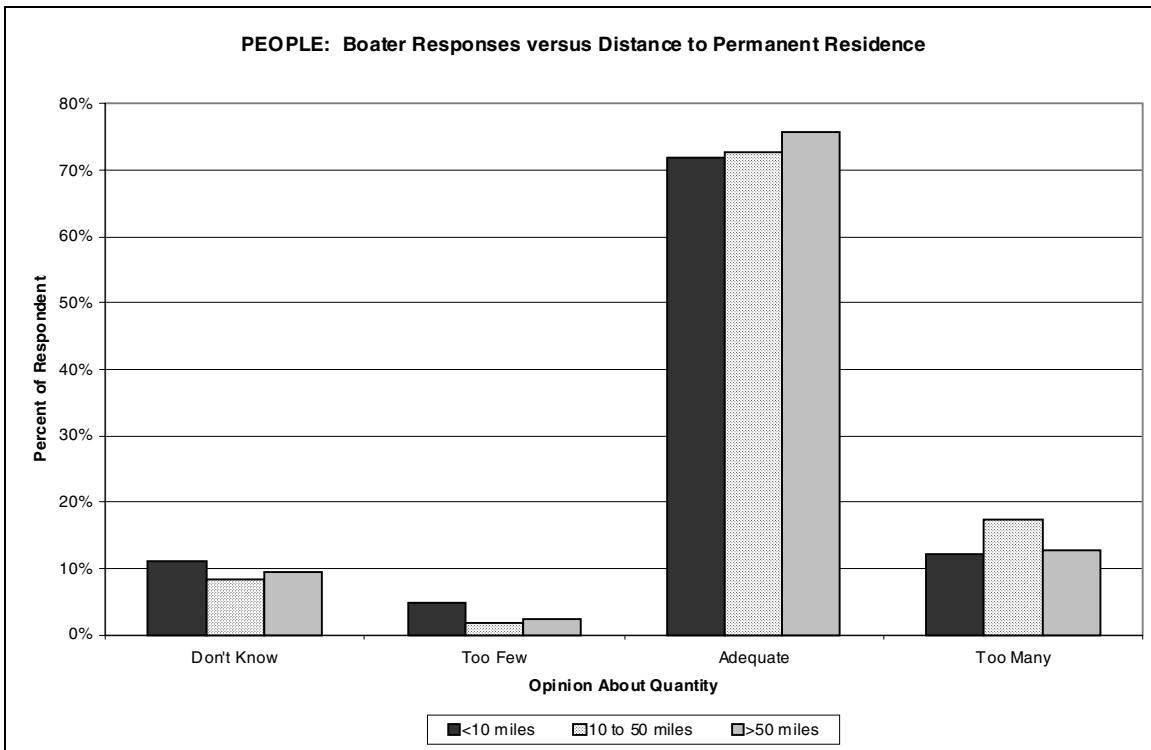


Figure 37. Opinion regarding number of people: responses versus distance to permanent residence.

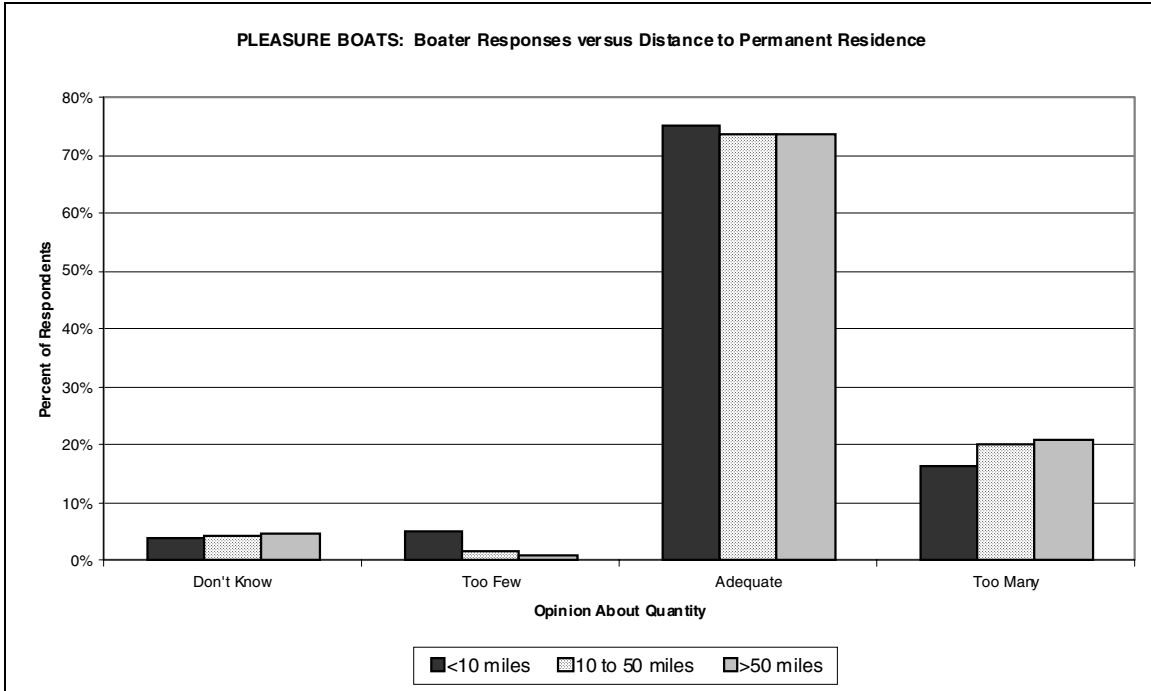


Figure 38. Opinion regarding number of pleasure boats: responses versus distance to permanent residence.

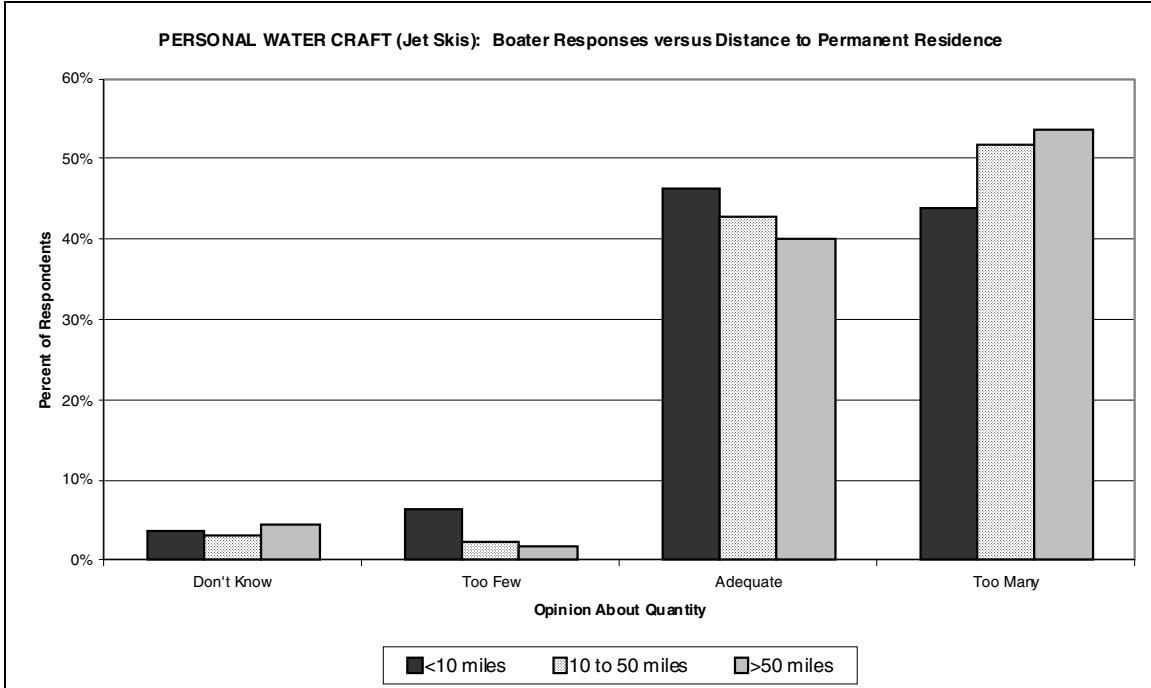


Figure 39. Opinion regarding number of personal watercraft: responses versus distance to permanent residence.

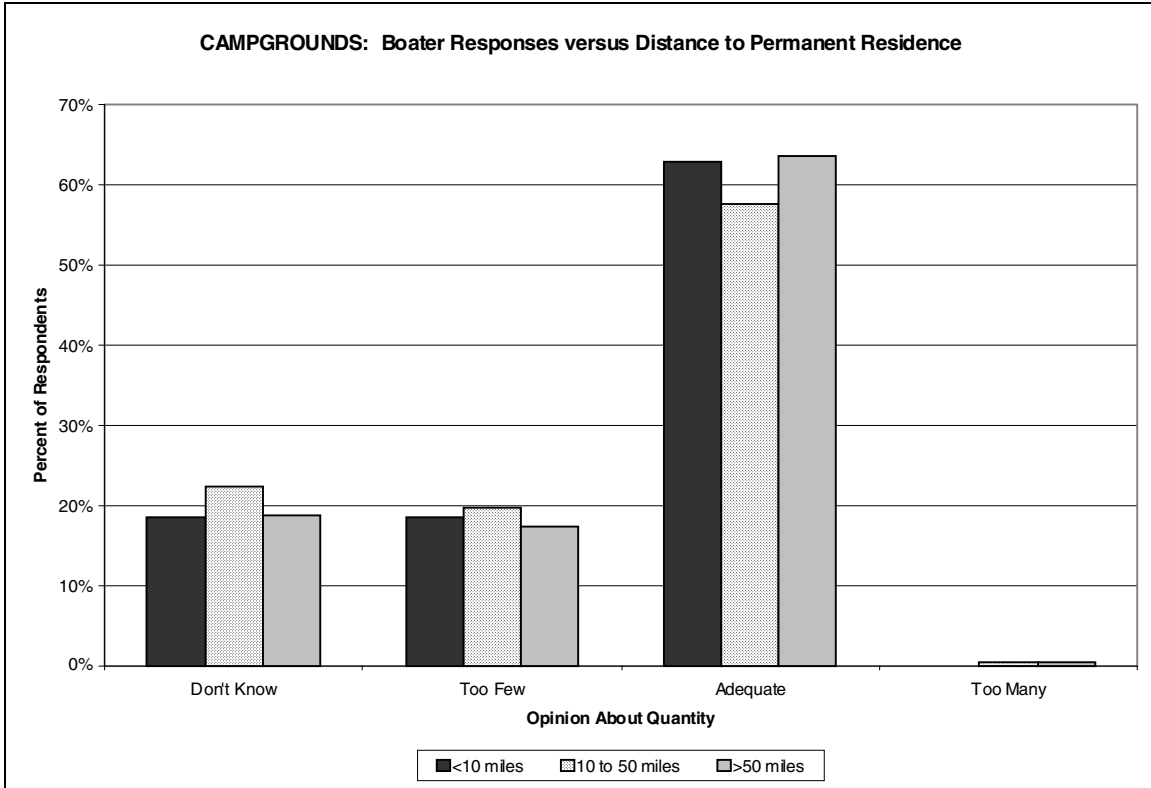


Figure 40. Opinion regarding number of campgrounds: responses versus distance to permanent residence.

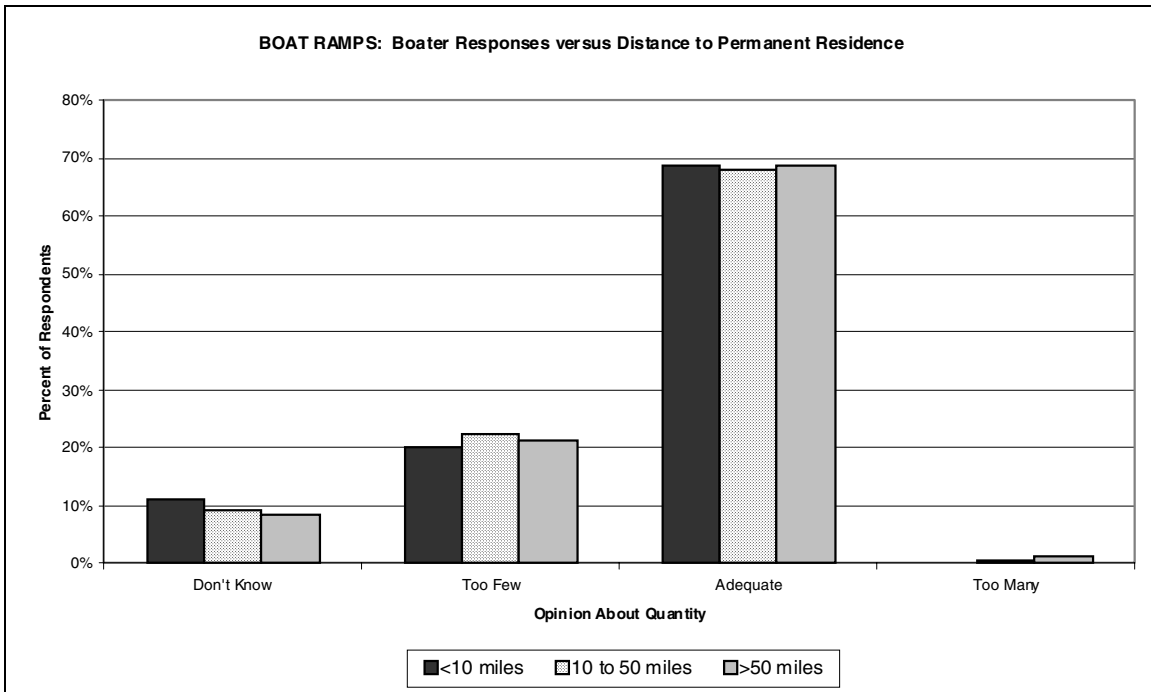


Figure 41. Opinion regarding number of boat ramps: responses versus distance to permanent residence.

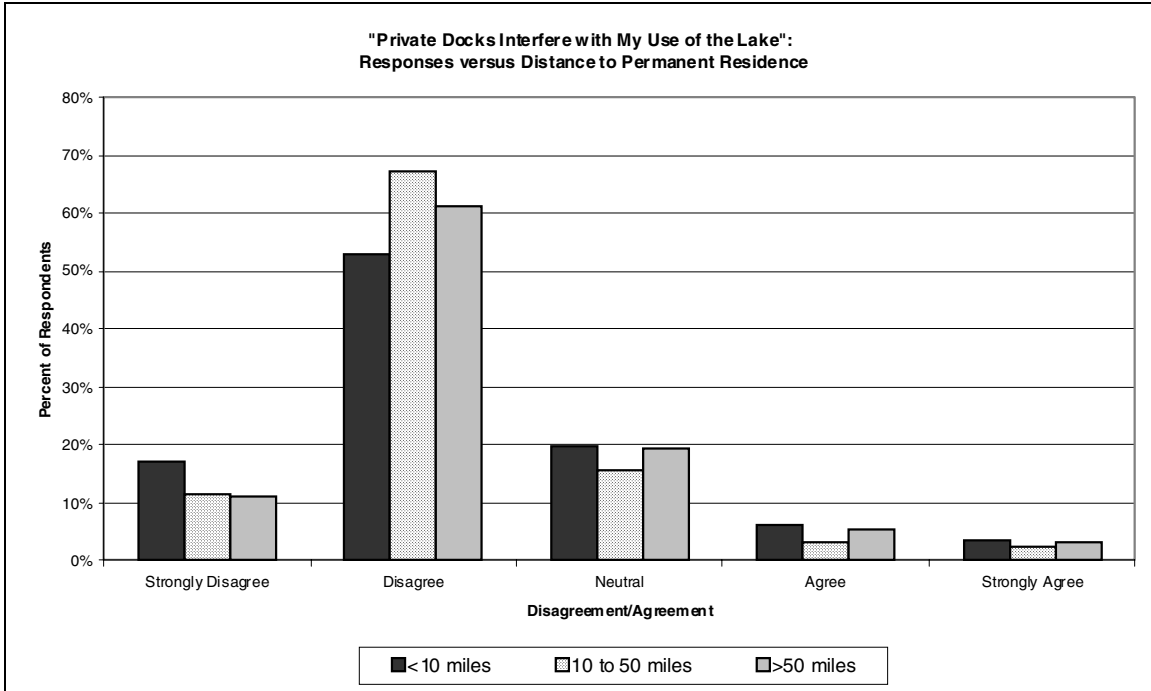


Figure 42. Opinion regarding interference of private docks: responses versus distance to permanent residence.

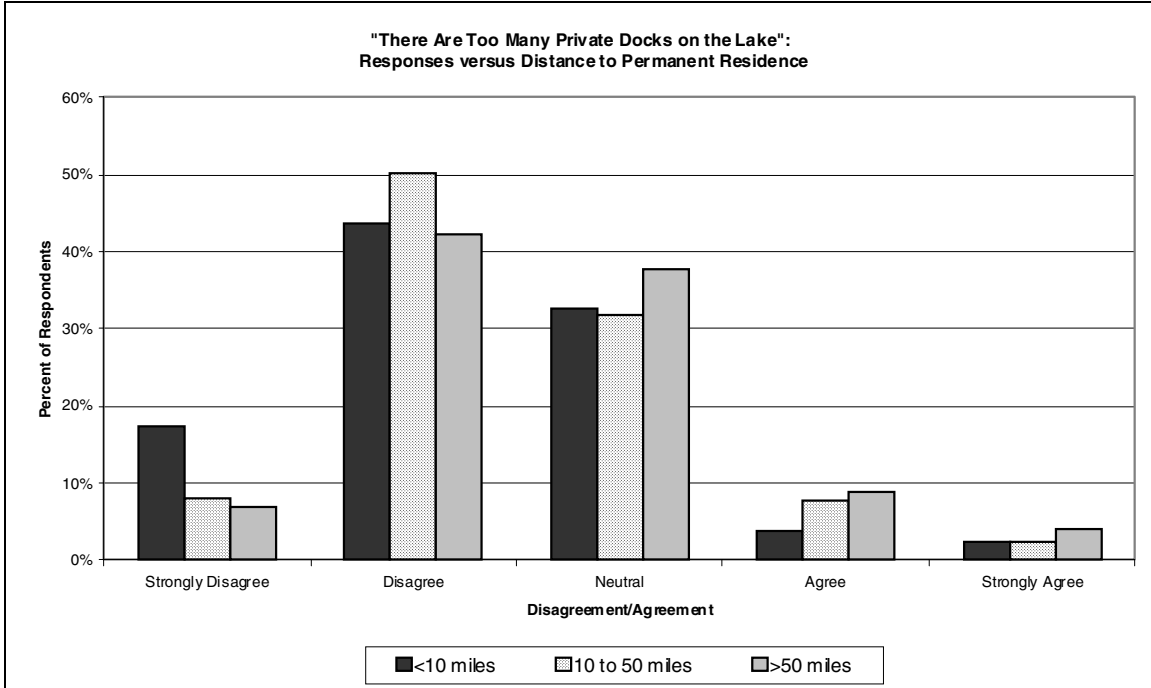


Figure 43. Opinion regarding number of private docks: responses versus distance to permanent residence.

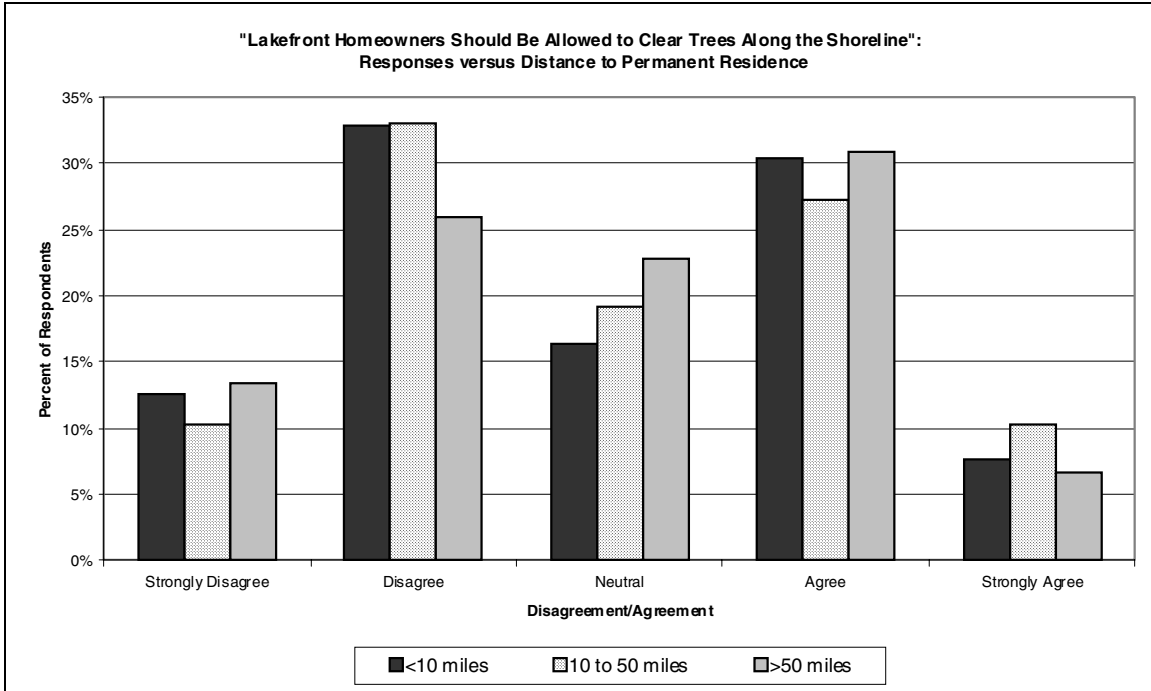


Figure 44. Opinion regarding clearing of trees along shoreline: responses versus distance to permanent residence.

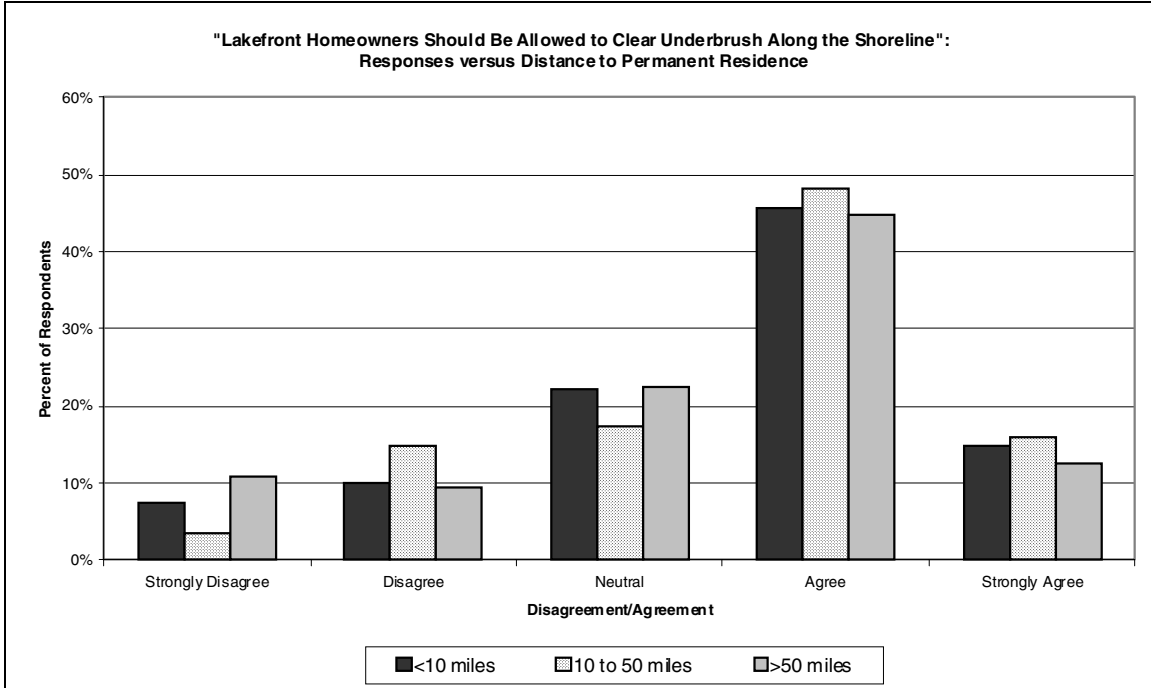


Figure 45. Opinion regarding clearing of underbrush along shoreline: responses versus distance to permanent residence.

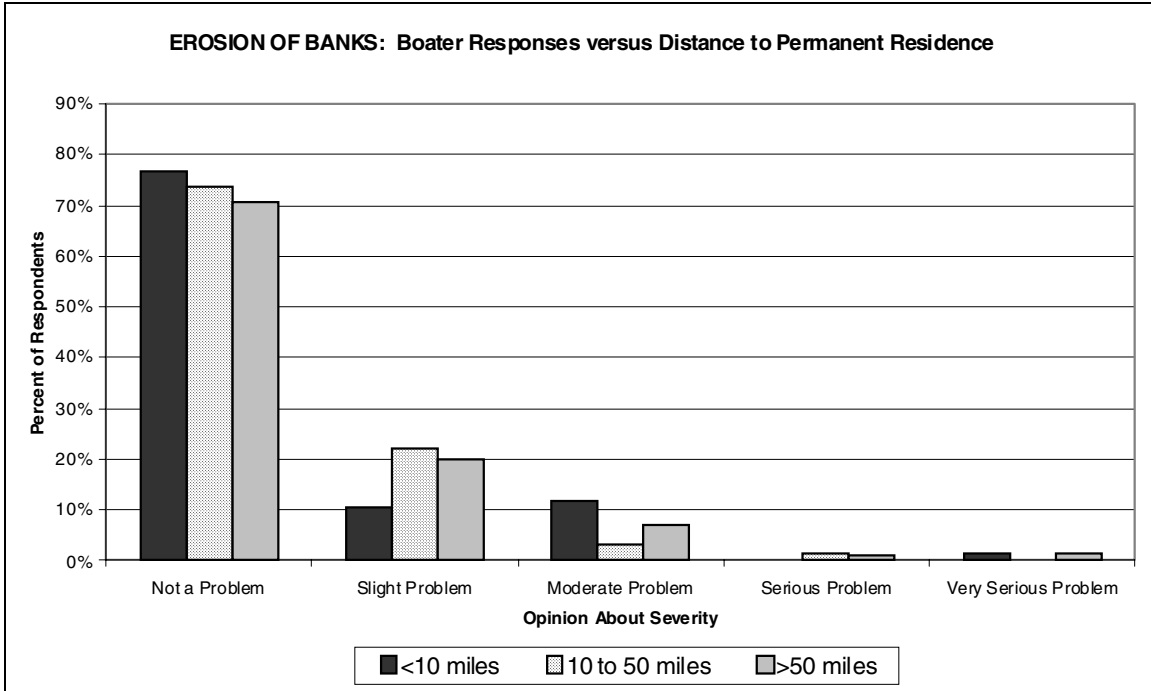


Figure 46. Opinion regarding bank erosion: responses versus distance to permanent residence.

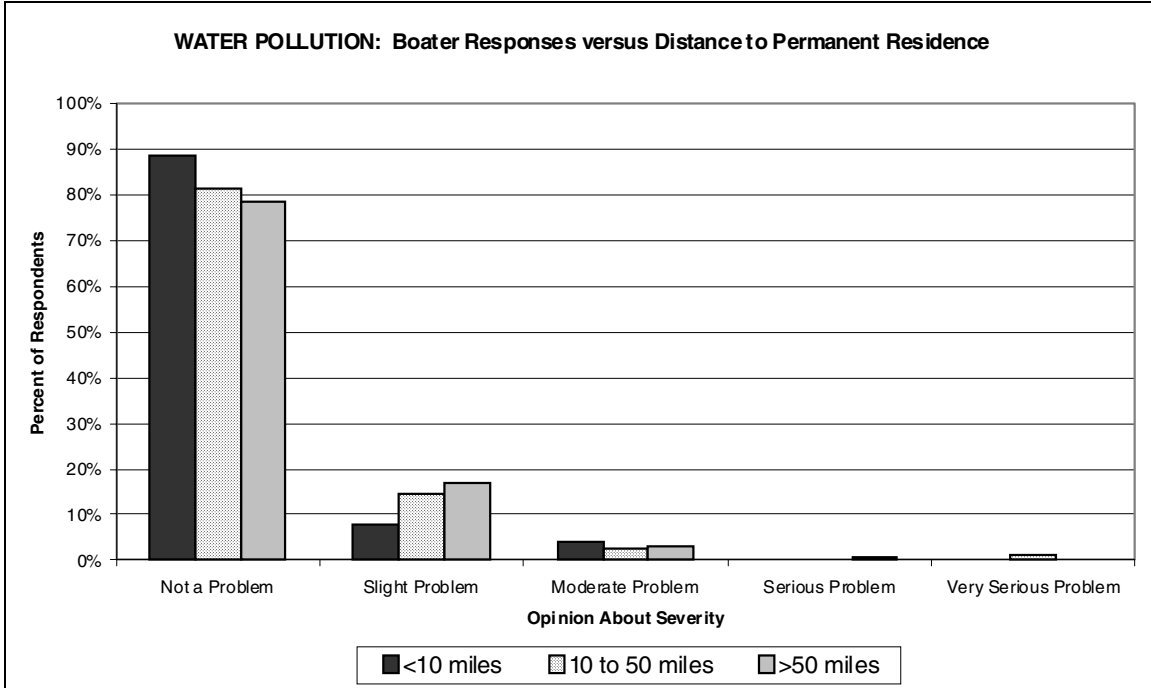


Figure 47. Opinion regarding water pollution: responses versus distance to permanent residence.

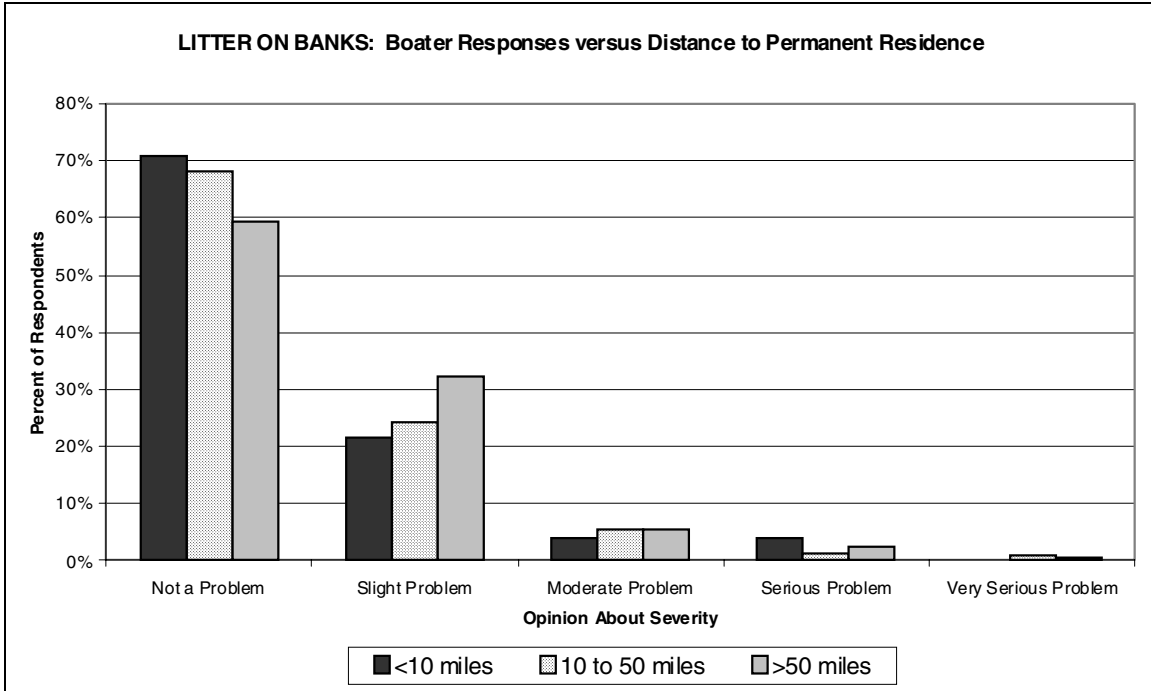


Figure 48. Opinion regarding litter on banks: responses versus distance to permanent residence.

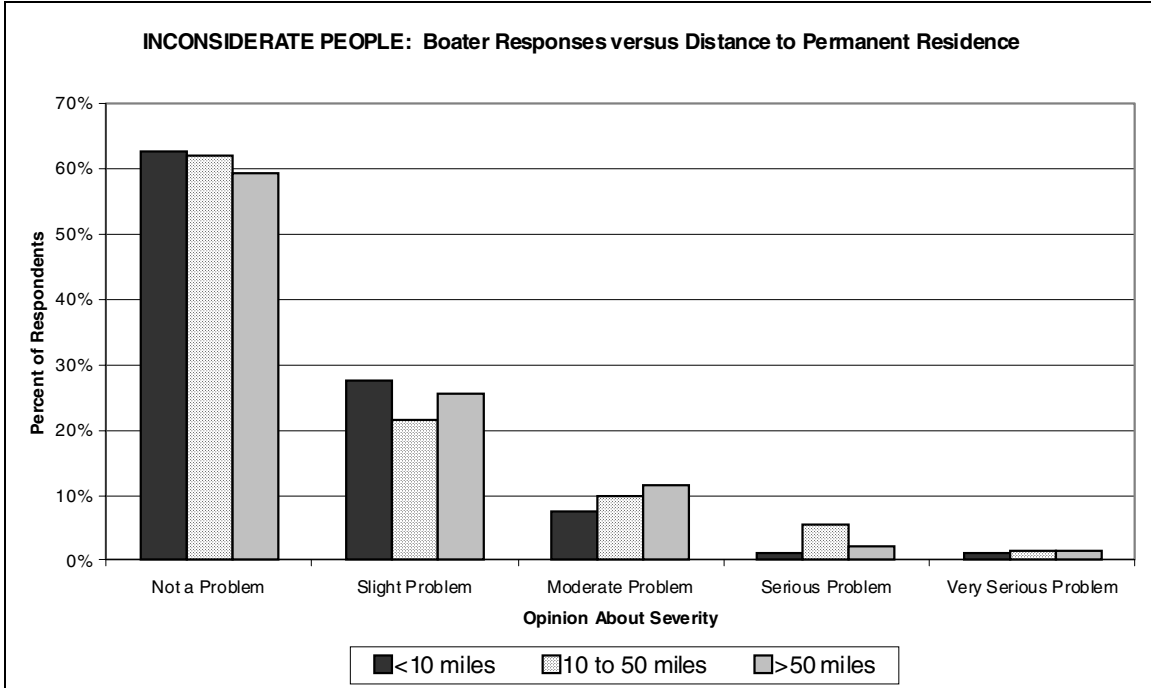


Figure 49. Opinion regarding inconsiderate people: responses versus distance to permanent residence.

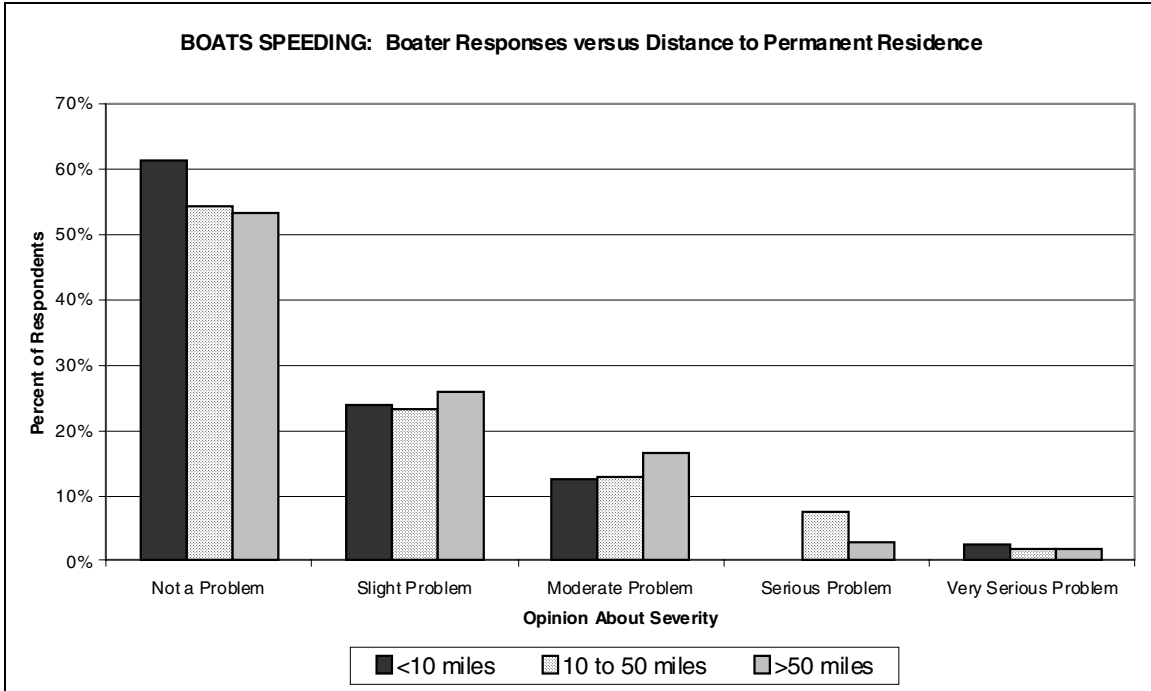


Figure 50. Opinion regarding boats speeding: responses versus distance to permanent residence.

Boat Counts

Twelve aerial boat counts were completed between May 26 and July 8, 2001. The results of the counts are presented in Table 30. Boat counts were concentrated on holidays and weekends to gather data on peak use periods on the lake. July 6 was considered part of a holiday because July 4 fell on a Wednesday. The highest numbers of boats on the lake were counted on holiday afternoons. The afternoon of May 27, the second day of the Memorial Day weekend, had the highest count—1,442 boats. Three other days—May 26, July 4, and July 6 (Friday)—had counts of more than 1,300 boats. All of these were afternoon counts. Afternoon counts on the non-holiday weekend of June 9 and 10 resulted in approximately 60 percent as many boats counted as on holiday weekend afternoons. In contrast, morning counts resulted in approximately 36 percent as many boats counted as on holiday weekend afternoons. The morning count on May 26 is not included in this calculation because the use of video recording during that count resulted in unreliable data.

User capacities for the lake under different scenarios are calculated using data collected on boater activities on the lake and published literature⁵ on the number of acres required for a “quality recreational experience” by type of recreational activity (Table 31). In Table 31, the second and third columns list the maximum and minimum numbers of acres required, respectively, for a quality recreational experience according to published literature. That is, it is estimated that lake managers should allow for the following maximum number of acres per boat for safe and enjoyable recreation: 24 acres per pleasure boat and jet ski; 36 acres per water skier; and 5 acres per fishing boat and sailboat. The minimum numbers of acres to be allowed for safe and

⁵ Kusler, 1972; Urban Research and Development Corporation, 1977.

enjoyable recreation are 10 acres per pleasure boater and jet skier, 20 acres per water skier, 5 acres per sailboat, and 3 acres per fishing boat. Using the average percent of users who said they engage in these activities (fourth column) and adjusting this percentage up to account for 100 percent of use (fifth column) provides the percent of lake surface that is, on average (according to boater exit surveys), used for these activities. (Adjustment up to 100 percent is necessary because some activities in which boaters stated they engaged, such as swimming, were ones that do not require lake surface.) Multiplying these percentages by the total lake surface area of 31,080 acres, the surface area of the lake that would, on average, be occupied by these activities was calculated (sixth column). Then, once again using the estimates of acres per activity in the second and third columns, the maximum and minimum number of users per activity that could be accommodated on the lake for safe and enjoyable recreation were calculated in the two rightmost columns. Totals for these columns, in the lower right corner of the table, provide estimates of the total number of users that should be allowed on the lake simultaneously under the minimum and maximum acreage estimates per activity.

These calculations provide estimates of 1,291 users that should be allowed on the lake if trying to provide the maximum number of acres per user, and 3,885 users if trying to provide the minimum number of acres per user. Comparing these estimates with the boat counts conducted during the study, it appears that, under maximum use conditions on holiday afternoons, the lake is currently providing approximately the maximum number of acres per user for safe and enjoyable recreation.

Performing similar calculations by area of the lake, using data from boater exit surveys on user activities specific to each area, the number of acres required to support the activities under the maximum and minimum acreage allowances are presented in Table 32. Comparing the maximum acreage allowances to the number of acres in each area of the lake, it appears that area 1 (6,398 acres required to support maximum acreage allowances versus 5,668 acres in the area) and area 5 (4,667 acres required to support maximum acreage allowances versus 2,689 acres in the area) are currently overused while the other areas are underused. Comparing the required acres under the minimum acreage allowances, area 5 appears to be the closest to its user capacity (2,125 acres required versus 2,689 acres in the area).

DATE	H ^a	TOD ^b	Area of Lake Counted					Total
			Area 1	Area 2	Area 3	Area 4	Area 5	
5/26	H	AM	(from video)					213
5/26	H	PM	248	422	128	365	189	1,352
5/27	H	AM	111	77	99	63	95	445
5/27	H	PM	375	193	276	325	277	1,446
6/9		PM	282	133	109	97	116	737
6/10		PM	206	226	121	141	170	864
7/4	H	AM	124	84	109	55	111	483
7/4	H	PM	470	172	207	158	337	1,344
7/5		AM	124	64	108	45	103	444
7/5		PM	211	121	133	117	167	749
7/6	H	AM	189	86	121	51	136	583
7/6	H	PM	429	160	289	122	303	1,303
Total Boat Count:							8,077	
Average Holiday/Weekend AM			137	78	109	54	111	489
Average Holiday/Weekend PM			381	237	225	243	277	1,363
Average Non-holiday PM			233	160	121	118	151	783
Non-holiday AM			(one count only, July 5)				444	

^a "H" indicates a count done on a holiday or weekend.
^b "TOD" = time of day, i.e., morning or afternoon.

Activity	Maximum Acres Per Boat ^a	Minimum Acres Per Boat ^a	Average % Users by Activity ^b	Adjusted % Users by Activity ^c	Acres Required by Activity ^d	Potential Users, Maximum Acreage	Potential Users, Minimum Acreage
Pleasure Boating	24	10	37%	57.8%	17,968.125	749	1,797
Waterskiing	36	20	12%	18.8%	5,827.5	162	291
Fishing	5	3	9%	14.1%	4,370.625	874	1,457
Jet Skiing	24	10	5%	7.8%	2,428.125	101	243
Sailing	5	5	1%	1.6%	485.625	97	97
Total Potential Users						1,983	3,885
Lake Acres Total					31,080		

^a The maximum (second column) and minimum (third column) numbers of acres that reasonably would be allotted in management planning per user engaged in the associated activity for safe and quality recreation.
^b Based on boater surveys conducted during the 2001 recreational season at Greers Ferry Lake.
^c Average percent users from the previous column adjusted up to total 100 percent.
^d Adjusted percent users multiplied by the total lake area (last row).

	Area 1	Area 2	Area 3	Area 4	Area 5
Acres	5,668	8,604	6,996	7,123	2,689
% of Lake	18.24%	27.68%	22.51%	22.92%	8.65%
Required Acres, Maximum Acreage Allowance	6,398	4,076	3,987	3,652	4,667
Required Acres, Minimum Acreage Allowance	2,980	1,889	1,801	1,617	2,125

Other Data

Other data to support this study are presented in Tables 33 through 35. These data include population information for Cleburne County and Van Buren County, boat registration data, and marina statistics.

	Cleburne County	Percent Change	Van Buren County	Percent Change
7/1/90	19,510		14,047	
7/1/91	19,912	2.06%	14,271	1.59%
7/1/92	20,262	1.76%	14,208	-0.44%
7/1/93	20,955	3.42%	14,528	2.25%
7/1/94	21,334	1.81%	14,650	0.84%
7/1/95	21,790	2.14%	15,047	2.71%
7/1/96	22,253	2.12%	15,244	1.31%
7/1/97	22,548	1.33%	15,552	2.02%
7/1/98	22,890	1.52%	15,533	-0.12%
7/1/99	23,296	1.77%	15,677	0.93%
Percent Change, 1990-1999		19.41%		11.60%
Total Population, Both Counties			7/1999	38,973
			2010 ^a	45,172

^a Projected, based on REMI model.
Source: USDOC, BOC, 2000.

Table 34. Boat Registration Data.				
	Boat Registrations, 2001			
Cleburne County	3,779			
Van Buren County	1,623			
Source: Arkansas Department of Finance and Administration, Boat Registrations Division, personal communication, June 2001; no historical data are available.				
Boat Registrations by Year	1996	1997	1998	1999
Arkansas (AR)	178,185	172,930	210,599	173,437
Rank of State in United States	27	27	24	27
Percent Change from Previous Year		-2.9%	21.8%	-17.6%
AR Registrations as Percent of U.S. Total				1.4%
Note: Per the National Marine Manufacturers Association, the boat registration requirement in Arkansas covers all power and other boats, except rowboats, canoes, kayaks.				

Table 35. Marina Statistics.					
Marina	Number of Slips, 2001	Number of Vacant Slips, 2001	Occupancy, 2001	Average Occupancy, 1996-2000	Notes
Choctaw	250	15	94%	unknown	Data not available
Dam Site	600	60	90%	unknown	Data not available
Eden Isle	792	50	94%	100%	250+ people on waiting list until 2/00; was not permitted to modify the marina until 1999
Heber Springs	420	4	99%	99%	Expansion to 330 slips was needed because of a waiting list for slips
Hill Creek	155	0	100%	unknown	Data not available
Narrows	400	20	95%	unknown	Data not available
Shiloh	568	14	98%	unknown	Data not available
Sugar Loaf	200	0	100%	unknown	Marina purchased in 6/99; no prior data are available to the current owner
Fairfield Bay	354	0	100%	100%	2-year waiting list

3. Discussion

Sample Size

Some idea of the level of sampling during the boater exit surveys was desired, and it was decided that the best means of estimating that level was to determine the number of boating permits issued at parks on the days when exit surveys were conducted. The data for the July 4 period are presented in Table 36. The number of surveys conducted at parks during this period represented between 6 and 65 percent of the number of boating permits issued, and presumably of boaters who used those parks on those days, with an average of 17.7 percent.

The required sample size to obtain a representative sample depends on certain assumptions about the population being sampled. For the purposes of this survey, the population of investigation was users of the lake. Within this population, boaters exiting the lake were surveyed personally and surveys were sent to a small group of marina slip renters and a larger group of adjacent landowners. There was no assumption prior to beginning the survey that boaters using one park would differ from boaters from any other park with respect to responses to the questions, and surveys were conducted at all parks to ensure that a broad sample of the entire boating population would be collected. There was also no assumption that one of the three groups would differ from another because it was assumed that adjacent landowners would be boating on the lake on days of exit surveys and that some marina slip renters would be adjacent landowners.

The total populations of the three groups individually and collectively are presented in Table 37. The number for the total population of exiting boaters assumes that the percentages of boaters surveyed on the days in Table 36 reasonably estimate the percentages surveyed for the entire period of the survey. If all three groups can be considered to be from a single population, the sample size of 919 would have been more than sufficient to have obtained a representative sample of the population (919 persons sampled from a population of 6,074 versus a required sample size of 370 for a population of 10,000)(top portion of Table 37). Looking at the responses to the questions on the survey, boaters more often than not differ from marina slip renters and adjacent landowners in their responses. Considering boaters to be one population, and marina slip renters and adjacent landowners to be another, the sample sizes necessary to sample each population separately are also provided in the bottom two portions of Table 37. If the two groups represent different populations, then the sample of exiting boaters would have been sufficient to obtain a representative sample of that group (636 persons from a population of 3,593 versus a required sample size of 357 for a population of 5,000), while the number of responses returned by marina slip renters and adjacent landowners might have been slightly small (284 persons sampled from a population of 2,481 versus a required sample size of 333 for a population of 2,500). Mailing lists from only three of the marinas on the lake were received, so the number of slip renters to whom surveys were mailed was smaller than originally intended.

Date	Location	# of Surveys	# of Visitors	% Surveyed
7/4/2001	Cherokee	11	17	65%
	Narrows	16	45	36%
	Shiloh	26	88	30%
Total:		53	150	34.6 %
7/6/2001	Choctaw	9	127	7%
	Cove Creek	4	28	14%
	Devils Fork	9	88	10%
	Heber Springs	5	80	6%
	OH 25	8	41	20%
Total:		35	364	9.3 %
7/7/2001	Cove Creek	10	92	11%
	Devil's Fork	16	135	12%
	Heber Springs	15	127	12%
	Sugar Loaf	20	164	12%
Total:		61	518	11.8 %
7/8/2001	Dam Site	45	95	47%
	Hill Creek	7	21	33%
	OH 25	9	56	16%
	Sugar Loaf	19	90	21%
Total:		80	262	30.6 %
Grand Total:		229	1,294	17.7 %
Range:		4 - 45	21 - 164	6 % - 65 %
Data for other parks or other days are not presented because data for the number of visitors on that day were not available or surveys were not conducted at the parks on the day for which visitor data were available.				

Table 37. Population Size Versus Sample Size.		
	Total Population	Sample Size^a
Adjacent landowners	1,626	169
Marina slip renters	855	115
Exiting boaters	3,593	636
Total:	6,074	919
Guideline:	5,000	357
	10,000	370
Adjacent landowners	1,626	169
Marina slip renters	855	115
Total:	2,481	284
Guideline:	2,500	333
Exiting boaters	3,593	636
Guideline:	2,500	333
	5,000	357
^a Guideline sample sizes provided in this column are those suggested to achieve a 95% confidence level and 5% sampling error (Salant and Dillman, 1994).		

Limitations of the Study

Limitations to the data in this study arise from sources common to all surveys. Responses to questions may vary depending on the delivery of questions by interviewers, whether an interviewer fills in responses to questions or those being surveyed fill in the answers themselves, and whether the surveys were filled out immediately after a visit to the lake or in a person's home at a time not necessarily associated with a visit to the lake. The number of responses to individual questions on this survey varied from question to question because some people did not respond to all questions. Most commonly, people did not respond to questions for which a set of chosen responses was not provided, such as questions on favorite places on the lake. Other questions for which a person merely had to check a box, such as the management issue questions, had a better overall response rate. The better response rate to such questions, while desired, is balanced by the lack of range of the responses to the questions that can be recorded (that is, the range is limited to the responses provided). Another source of error in a survey of this sort is the responsiveness of the person being surveyed. Some people like to respond to surveys and take their time, while others reluctantly agree to respond and provide less complete responses or responses that are less thoughtful. Separating these types of responses in the results is difficult if not impossible, and all responses must be treated equally.

Incomplete understanding of the population to be sampled could lead to an incorrect sampling method or design. For the purposes of this survey, the population was assumed to be homogeneous with respect to opinions about the lake. That is, no assumption was made beforehand that one group would feel one way or another about an issue or a question, and the respondents were treated as a single population. To check this, the data were tabulated according to group (surveyed boater, marina slip renter, and adjacent landowner) and according to distance of permanent residence from the lake. The results did highlight some differences between the groups in some instances, but in other instances no discernible differences in the responses of the groups were found.

These limitations can never be overcome completely, but they can be reduced through survey design. The quality of interviewers was controlled for by having all interviewers attend a training session conducted by a professional surveying organization. Controlling for the manner in which the surveys were filled in was balanced with a desire to acquire enough surveys. Some surveys were filled in by the surveyors, while some were filled in by boaters themselves. This approach was considered necessary to gather as many surveys as possible and was favored over a method of surveying only one boater while other exiting boaters left the lake and the parks without providing their opinions. Obviously, no control could be exercised over how mailed surveys were filled in. All of these potential sources of error were minimized by collecting a large number of survey responses, ensuring that the questions were unambiguous, and providing complete instructions on the surveys.

Supervision of the surveying is another potential source of error. Although the interviewers were trained, they were mostly new to surveying, and problems and questions were bound to arise and require the input of an experienced supervisor. Problems did arise with the supervision provided during the first part of the survey. However, a person who was not associated with the professional surveying organization but had attended the surveyor training was present to supervise most activities. Fortunately, most of the problems that arose were logistical and administrative in nature, such as the assignment of interviewers to parks, and did not have to do with the actual conduct of the surveys. Although the surveyors could not be monitored continuously, they received training in surveying and were spot checked for performance. There were some attendance problems, but only minor problems were noted in the surveyors' conduct of the surveys.

Management Information Obtained

Much of the information obtained during the study is applicable to lake management. Information about visitors to the lake, reported in this report under *Visitor Descriptions*, provides lake managers with details on how people use the lake. For instance, the results indicate that marina slip renters and adjacent landowners tend to have a longer history of association with the lake than the general boating population. Information collected on where people who visit the lake come from can be valuable in helping management to target specific geographic areas for public service announcements and camping information, or in recommending road improvements to improve traffic flow.

Marina slip renters and adjacent landowners also tend to spend more days per year on the lake and tend to visit during the week more than the general boating population. Lake managers might benefit from this knowledge by concentrating patrols and outreach efforts during the week at parks with marinas rather than at those with boat ramps only. The survey data also indicate that the average boater spends one-half day on the lake, implying that the number of people using lake facilities on busy days is, on average, about twice the capacity of those facilities (i.e., two

populations, each using the facilities for 4 hours). This information could be valuable with respect to planning for trash removal, traffic flow, and facilities expansion.

The information obtained on how visitors use the lake spatially indicates which areas of the lake are most popular, what it is about the areas that people find attractive, and how people move about on the lake from the various access points. This information can be valuable when deciding where to place new facilities and how development, if any, in different parts of the lake might be perceived. For instance, many people expressed the opinion that they would like to have more eating facilities available on or near the lake. Areas favored for their scenic beauty could be dismissed as potential locations for such development. Parks that have few eating establishments nearby and from which many boaters move to other parts of the lake might be candidate locations, and such development might help to reduce congestion in more crowded areas.

The results indicate that lake areas 1 and 5 are the closest to being overused and that area 5 might be the most heavily used. Confirmation of these findings with ground observations would be valuable. If they are found to be true, additional facilities might be in area 5 or, to the contrary, facilities might be needed in less-used areas to attempt to distribute boaters more evenly across the lake.

The variety of responses received regarding management issues can also be valuable. The responses and the additional comments people provided indicate with which aspects of the lake, lake management, and lake facilities visitors are satisfied or dissatisfied. Exiting boaters differed from adjacent landowners and marina slip renters in many opinions, but opposing views were balanced in many cases. For instance, although many respondents mentioned boats speeding as a problem, the data indicate that exiting boaters overwhelmingly said this is not a problem. Furthermore, the number of marina slip renters and adjacent landowners that said boats speeding is not a problem was approximately equal to the number that said that it is a serious problem. Another example is boater perceptions of private boat docks. Among exiting boaters, the largest portion of respondents said that there are too many private boat docks, but they also indicated that private docks do not interfere with their use of the lake. This discrepancy could indicate that to boaters private docks are more a visual and aesthetic issue than an issue of hindered recreational activities. In these cases, the data help to determine whether a problem is real or only perceived.

Finally, opinions about conditions on the lake indicate how the current population of lake users views existing conditions on the lake, the direction in which they would like lake management to go, and the types of facilities and lake characteristics that are most important to visitors.

References

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- Urban Research and Development Corporation. 1977. *Guidelines for Understanding and Determining Optimum Recreation Carrying Capacity*. Urban Research and Development Corporation, Hyattsville, Maryland.
- USDOC, BOC. 2000. *County Population Estimates*. U.S. Department of Commerce, Bureau of the Census. <<http://www.census.gov/population/www/estimates/countypop.html>>. Accessed July 30, 2001.

Appendix A
Survey Schedules

Schedule for Recreational Carrying Capacity Study			
Task	Date of Occurrence	Deliverable Items	Number of Copies to be Delivered (if applicable)
Notice to Proceed	10/23/2000		
Orientation Meeting	11/21/2000	Draft Recreational Carrying Capacity Study Project Management Plan	1
Recreational Carrying Capacity Study Project Management Plan	3/26/2001	Final Recreational Carrying Capacity Study Project Management Plan	3
Monthly Progress Reports	15 th of each month	Monthly Progress Reports	1
On-site Data Collection	May to July, 2001	N/A	N/A
Analysis of Recreational Carrying Capacity Data	July thru August 2001		
Preliminary Water-Related Recreational Use Study Review Presentation	8/23/2001	Presentation	N/A
Draft Recreational Carrying Capacity Study Report	9/14/2001	Draft Recreational Carrying Capacity Study Report	3
Final Recreational Carrying Capacity Study Report	9/27/2001	Final Recreational Carrying Capacity Study Report	15 each hardcopies and electronic copies
Deliver Administrative Record (Back up Material)	10/7/2001	Recreational Carrying Capacity Study Administrative Record	1

SCHEDULE OF SURVEYS AND BOAT COUNTS AND METHODOLOGY

Table 1. Schedule of Interviews and Boat Counts.

Weekend Days (16)	Weekdays (28)	Activities
26 May (h)		survey/boat count
27 May (h)		survey/boat count
28 May (h)		<i>contingency survey/boat count</i>
	29 May	
	30 May	
	31 May	
	1 June	
2 June		
3 June		
	4 June	
	5 June	
	6 June	
	7 June	
	8 June	
9 June		survey/boat count
10 June		survey/boat count
	11 June	
	12 June	
	13 June	survey
	14 June	survey
	15 June	
16 June		
17 June		
	18 June	survey
	19 June	<i>contingency survey</i>
	20 June	survey
	21 June	
	22 June	<i>contingency survey</i>
23 June		<i>contingency survey/boat count</i>
24 June		<i>contingency survey</i>
	25 June	
	26 June	
	27 June	
	28 June	
	29 June	
30 June		
1 July		
	2 July	
	3 July	
4 July (h)		survey/boat count
	5 July	survey/boat count
	6 July	survey/boat count
7 July		survey/ <i>contingency boat count</i>
8 July		survey/ <i>contingency boat count</i>

NOTES:

survey = interview survey day; survey/boat count = interviews and boat counts on the same day

contingency survey = inclement weather (rain/wind) makeup day

h = holiday

METHODOLOGY:

1. The dates of 26 –28 May were preselected for inclusion in the boater survey because they constitute the Memorial Day holiday weekend. One of these days was randomly chosen not to be counted, as I assumed that counts on two of the three days would be sufficient. The day selected to not be counted (28 May) was assigned as a contingency (rain) day. July 4 was also pre-selected for the same reason.
2. The non-holiday weekends of 2-3 June, 9-10 June, 16-17 June, and 23-24 June were assigned numbers and one weekend was randomly selected to be included in the survey. Another weekend that fell after the weekend chosen was randomly chosen as the contingency weekend.
3. Two weeks from among 29 May; 4, 11, 18, and 25 June were randomly chosen. From within these weeks, two days were randomly chosen for the weekday surveys. Again, from weekdays within the weeks chosen and after the survey days chosen, contingency days were randomly chosen.
4. One of the two weekends of 30 June-1 July and 7-8 July was randomly chosen as a holiday weekend.
5. One of the two blocks of two days surrounding 4 July was randomly chosen. These days are expected to be similar to holiday or weekend use.
6. The days of 7 July and 8 July were assigned as contingency boat count days, in the event that something prevents obtaining 7 boat counts prior to that weekend.

INTERVIEW SCHEDULE:

Original (prior to redistribution of interview slots to even the distribution among ramps/marinas):

Launch Ramp/Park	Days	Marina	Days
Old Highway 25	6/9, 6/10, 6/13, 6/14, 6/18, 6/20, 7/4, 7/5, 7/7, 7/8	Dam Site	5/26, 6/10, 6/13, 6/18, 7/5, 7/6, 7/8
Cherokee	5/26, 5/27, 6/10, 6/13, 6/14, 6/18, 6/20, 7/4, 7/6, 7/8	Shiloh Park	5/26, 5/27, 6/13, 6/14, 6/18, 6/20, 7/4, 7/5, 7/6, 7/7, 7/8
Devil's Fork	5/26, 6/9, 6/10, 6/18, 6/20, 7/4, 7/5, 7/6, 7/7	Hill Creek Park	6/10, 6/13, 7/5, 7/7, 7/8
Mill Creek	5/26, 5/27, 6/13, 6/18, 7/4, 7/6, 7/7, 7/8	Fairfield Bay	5/26, 5/27, 6/9, 6/10, 6/14, 6/18, 6/20, 7/4, 7/6, 7/7, 7/8
South Fork	5/26, 5/27, 6/9, 6/10, 6/13, 6/14, 7/5, 7/6	Choctaw Park	5/26, 5/27, 6/9, 6/13, 6/18, 6/20, 7/4, 7/6
Cove Creek	5/27, 6/9, 6/14, 6/20, 7/5, 7/7, 7/8	Sugar Loaf Park	5/26, 5/27, 6/9, 6/10, 6/13, 6/14, 6/20, 7/4, 7/5, 7/7, 7/8
		Narrows Park	5/27, 6/9, 6/10, 6/14, 6/18, 7/4, 7/6
		Heber Springs Park	6/9, 6/13, 6/14, 6/20, 7/5, 7/6, 7/7, 7/8
		Eden Isle Park	5/26, 5/27, 6/9, 6/10, 6/14, 6/18, 6/20, 7/4, 7/5, 7/7

Adjusted (after redistribution to obtain equal sampling effort at ramps and marinas):

Launch Ramp/Park	Days	Marina	Days
Old Highway 25	6/9-A, 6/10-P, 6/13-P, 6/14-P, 6/18-P, 6/20-A, 7/4-P, 7/5-P, 7/8-A	Dam Site	5/26-A, 6/9-A, 6/10-A, 6/13-P, 6/18-A, 7/5-A, 7/6-P, 7/7-P, 7/8-A
Cherokee	5/27-P, 6/10-A, 6/13-A, 6/14-A, 6/18-A, 6/20-A, 7/4-A, 7/6-A, 7/8-P	Shiloh Park	5/26-A, 5/27-P, 6/13-P, 6/14-P, 6/18-A, 6/20-A, 7/4-A, 7/5-A, 7/8-P
Devil's Fork	5/26-P, 6/9-A, 6/10-A, 6/20-P, 7/4-P, 7/5-P, 7/6-A, 7/7-A	Hill Creek Park	5/27-A, 6/10-P, 6/13-A, 6/20-A, 7/5-P, 7/6-A, 7/7-A, 7/8-P
Mill Creek	5/26-A, 5/27-P, 6/13-A, 6/18-A, 7/4-A, 7/6-P, 7/7-P, 7/8-P	Fairfield Bay	5/26-P, 5/27-P, 6/10-P, 6/14-P, 6/18-P, 7/4-P, 7/6-A, 7/7-P, 7/8-A
South Fork	5/26-A, 5/27-A, 6/9-P, 6/10-P, 6/13-P, 6/14-A, 7/5-A, 7/6-P, 7/7-A	Choctaw Park	5/26-A, 5/27-P, 6/9-A, 6/13-A, 6/18-A, 6/20-P, 7/4-A, 7/6-P
Cove Creek	5/26-P, 5/27-A, 6/9-P, 6/14-P, 6/18-P, 6/20-P, 7/5-A, 7/7-P, 7/8-A	Sugar Loaf Park	5/26-P, 6/9-P, 6/10-A, 6/13-A, 6/14-P, 6/20-A, 7/4-P, 7/7-A, 7/8-A
		Narrows Park	5/27-A, 6/9-P, 6/10-P, 6/14-A, 6/18-P, 7/4-P, 7/5-A, 7/6-P, 7/7-P
		Heber Springs Park	6/9-P, 6/13-P, 6/14-A, 6/20-P, 7/5-P, 7/6-A, 7/7-A, 7/8-P
		Eden Isle Park	5/26-P, 5/27-A, 6/9-A, 6/10-A, 6/14-A, 6/18-P, 6/20-P, 7/4-A, 7/5-P

NOTES:

A = AM time slot

P = PM time slot

METHODOLOGY:

1. On each survey day, two ramps are staffed in the AM and PM, and three marinas in the AM and PM: total of four ramps and six marinas per survey day.
2. The names of the ramps were placed on six cards; for each day, four ramps were randomly drawn and assigned to that day. After each draw, the card was replaced in the group so the same number of cards was being drawn from each draw. Draws were repeated for ramps until four were assigned to each day.

Original: one ramp (Cove Creek) had 7 days
 two ramps (Mill Creek and South Fork) had 8 days
 one ramp (Devil's Fork) had 9 days
 two ramps (Old Highway 25 and Cherokee) had 10 days

Adjusted: A ramp (Devil's Fork) from those with 9 or 10 days was randomly selected. A ramp (Cove Creek) from those with 7 or 8 days was randomly selected. A donor ramp day (6/18) that didn't match a recipient ramp day was randomly chosen and moved to the recipient ramp:

Devil's Fork => Cove Creek: 6/18

This resulted in 2 ramps with 10 days and 4 ramps with 8 days. Two iterations of the following were performed: An 8-day ramp was randomly selected and a day from a 10-day ramp was randomly selected to be moved to it. This resulted in four 9-day ramps and two 8-day ramps:

Old Highway 25 => South Fork: 7/7
Cherokee => Cove Creek: 5/26

This resulted in:

Old Highway 25, Cherokee, South Fork, and Cove Creek with 9 days
Devil's Fork and Mill Creek with 8 days

3. Repeat for marinas.

Original: Hill Creek: 5
 Dam Site, Narrows: 7 (14)
 Choctaw, Heber Springs: 8 (16)
 Eden Isle: 10
 Shiloh, Fairfield Bay, Sugar Loaf: 11 (33)
 Total: $78 = 13 \times 6$; $78/9 = 8.7$ days per marina, or 8 or 9 days per marina

4. To adjust the distribution, since it is the days I wanted randomized, not the marinas (i.e., I wanted all marinas covered evenly, but on randomly selected days), I took days from Shiloh, Fairfield Bay, Sugar Loaf, and Eden Isle and randomly assigned them to the other marinas. To do this, I randomly selected one of the donor marinas (Shiloh, Fairfield Bay, Sugar Loaf, Eden Isle) and a day from it and randomly assigned it to one of the recipient marinas (Hill Creek, Dam Site, Narrows). I repeated this until the distribution was even with 8 or 9 days per marina.

Adjusted: Eden Isle => Narrows: 7/7 (Eden Isle, Narrows removed)
 Fairfield Bay => Dam Site: 6/9 (Dam Site removed)

Fairfield Bay => Hill Creek: 6/20 (Fairfield Bay removed)

Sugar Loaf => Hill Creek: 5/27

Shiloh => Hill Creek: 7/6 (Dam Site, Narrows replaced; Choctaw, Heber Springs added to recipients: all had 8 days assigned at this point, while Shiloh and Sugar Loaf each had 10)

Sugar Loaf => Narrows: 7/5 (Sugar Loaf and Narrow removed)

Shiloh => Dam Site: 7/7

5. Two ramps and three marinas for each day were randomly assigned to an AM time slot. The other two ramps and three marinas were assigned to PM time slots.
6. 5/25. Received OMB approval and suggestions for revisions to the questionnaires. All suggestions were considered and the questionnaires revised. Details are provided in the file *Response2Shaw&Laity.doc*.
7. 6/1. Based on the first weekend's (Memorial Day, 5/26 and 5/27) experience, the schedule was revised. Factors taken into consideration included the travel time from AM to PM sites and the lack of boaters coming off the lake between 10 AM and 12 noon during the AM interviewing session.
 - a. Interviewing between the hours of 10 am-12 am was eliminated, and interviewing was changed to be continuous, with a ½-hour to 1-hour break for eating/resting, from 12 noon to 7 pm.
 - b. Separate AM and PM schedules were eliminated. The reason for separate AM and PM schedules provided in other lake carrying capacity studies was the assumption that lake use would differ between the two time slots, so they really represented different populations. By continuing to survey the 12 am – 2 pm timeslot, we do not entirely eliminate this population. The primary purpose of the study is to gather a sufficient number of survey responses to characterize boater opinions on a number of issues, not to characterize lake use at different times of the day. Therefore, the consideration of being at the lake when boaters are coming off the lake was considered more important than being at the lake at specific times. Also, according to the Tetra Tech supervisor at the lake, many fishers (the population assumed to be using the lake in the morning) come off of the lake late in the day and are captured in the afternoon time slots.
 - c. The schedule was revised to have interviewers remain at the same park all day, still visiting two ramps and three marinas each day. To do this, ½ of the parks originally assigned to the days were randomly eliminated. Then the parks were redistributed among the days only as necessary to maintain a somewhat even coverage in terms of the number of days each park was staffed. Ramps/marinas with many days assigned to them after elimination of PM time slots were randomly reassigned to those with fewer days assigned, until further reassignment would not further equalize the distribution. A ramp/marina with many days assigned was chosen first, randomly if more than one had the same number of days; then a ramp/marina with few days was chosen, randomly if necessary; and finally a date from the overassigned ramp/marina was randomly chosen and moved to the underassigned ramp/marina. The revised schedule is at SCHEDULE OF SURVEYS AND BOAT COUNTS.doc.
 - d. Mailing lists were requested from Cleburne County Tax Assessor and Van Buren County Appraiser. Van Buren County requested that the township/range/sections be specified, which I did from a soil survey map. Cleburne county sent the entire database, from which I selected township/range/sections close to GFL.
 - e. Salant & Dillman (1994) table, page 55, specified that for a population of 1,000 (Cleburne County), a 50/50 split in expected response (i.e., no expectation of a particular type of response of survey questions), and a +/- 5% sampling error desired (95% confidence) a sample size of 278 would be required. Interpolation to the actual Cleburne county population (949) left a sample size of 264. For

Van Buren County, the sample size for the population of 677 was 188. These quantities of random numbers were generated in Excel, and for each random number generated, after duplicates were removed and new random numbers generated to replace them, the residents corresponding to the numbers were selected to receive surveys.

- f. The number of surveys to send out was determined as if the adjacent landowners, marina slip renters, and boaters interviewed personally were separate populations. In fact, the questions are nearly identical on all survey instruments, and there is no reason initially to believe the populations differ. That is, they are considered to be of the same population, i.e., GFL users. Using the sample sizes for separate populations ensured that, given nonrespondents on the part of marina slip renters and adjacent landowners, a sufficient number of completed surveys would be received to achieve the required sample size.
- g. The required sample size to meet the criteria above (50/50 split, 5% error) would be calculated for a population of 4505 (2 counties + marina slip renters), which would be $537 + (2005/2500)*64$ [to interpolate between 2,500 and 5,000 on the table on page 55] = $537 + 51 = 588$. 450 surveys were sent to county residents and $\frac{1}{4}$ of each marina's slip renters (this was specified in the SOW) received surveys. Combined with the boater personal interviews (approximated at 350 based on early results), it was anticipated that enough responses would be obtained to satisfy the sampling requirements.

ORIGINAL SCHEDULE

MAY						
SATUR	SUNDAY	MONDAY	TUESDAY	WEDNES	THURS	FRI
26 AM Ramps: Mill Creek South Fork AM Marinas: Dam Site Shiloh Choctaw PM Ramps: Devil's Fork Cove Creek PM Marinas: Fairfield Bay Sugar Loaf Eden Isle	27 AM Ramps: South Fork Cove Creek AM Marinas: Hill Creek Narrows Eden Isle PM Ramps: Cherokee Mill Creek PM Marinas: Shiloh Fairfield Bay Choctaw	28 <i>contingency survey</i>				

ORIGINAL SCHEDULE (cont.)

JUNE		SUNDAY	MONDAY	TUESDAY	WEDNES	THURS	FRI
9	<p>AM Ramps: OH25 Devil's Fork</p> <p>AM Marinas: Dam Site Choctaw Eden Isle</p> <p>PM Ramps: South Fork Cove Creek</p> <p>PM Marinas: Sugar Loaf Narrows Heber Springs</p>	<p>10</p> <p>AM Ramps: Cherokee Devil's Fork</p> <p>AM Marinas: Dam Site Sugar Loaf Eden Isle</p> <p>PM Ramps: OH25 South Fork</p> <p>PM Marinas: Hill Creek Fairfield Bay Narrows</p>			<p>13</p> <p>AM Ramps: Cherokee Mill Creek</p> <p>AM Marinas: Hill Creek Choctaw Sugar Loaf</p> <p>PM Ramps: OH25 South Fork</p> <p>PM Marinas: Dam Site Shiloh Heber Springs</p>	<p>14</p> <p>AM Ramps: Cherokee South Fork</p> <p>AM Marinas: Narrows Heber Springs Eden Isle</p> <p>PM Ramps: OH25 Cove Creek</p> <p>PM Marinas: Shiloh Fairfield Bay Sugar Loaf</p>	
			<p>18</p> <p>AM Ramps: Cherokee Mill Creek</p> <p>AM Marinas: Dam Site Shiloh Choctaw</p> <p>PM Ramps: OH25 Cove Creek</p> <p>PM Marinas: Fairfield Bay Narrows Eden Isle</p>	<p>19</p> <p><i>contingency survey</i></p>	<p>20</p> <p>AM Ramps: OH25 Cherokee</p> <p>AM Marinas: Shiloh Hill Creek Sugar Loaf</p> <p>PM Ramps: Devil's Fork Cove Creek</p> <p>PM Marinas: Choctaw Heber Springs Eden Isle</p>		<p>22</p> <p><i>contingency survey</i></p>
23	<i>contingency survey</i>	<p>24</p> <p><i>contingency survey</i></p>					

ORIGINAL SCHEDULE (cont.)

JULY						
SATUR	SUNDAY	MONDAY	TUESDAY	WEDNES	THURS	FRI
<p>7</p> <p>AM Ramps: Devil's Fork South Fork AM Marinas: Hill Creek Sugar Loaf Heber Springs</p> <p>PM Ramps: Mill Creek Cove Creek PM Marinas: Dam Site Fairfield Bay Narrows</p>	<p>8</p> <p>AM Ramps: OH25 Cove Creek AM Marinas: Dam Site Fairfield Bay Sugar Loaf</p> <p>PM Ramps: Cherokee Mill Creek PM Marinas: Shiloh Hill Creek Heber Springs</p>			<p>4</p> <p>AM Ramps: Cherokee Mill Creek AM Marinas: Shiloh Choctaw Eden Isle</p> <p>PM Ramps: OH25 Devil's Fork PM Marinas: Fairfield Bay Sugar Loaf Narrows</p>	<p>5</p> <p>AM Ramps: South Fork Cove Creek AM Marinas: Dam Site Shiloh Narrows</p> <p>PM Ramps: OH25 Devil's Fork PM Marinas: Hill Creek Heber Springs Eden Isle</p>	<p>6</p> <p>AM Ramps: Cherokee Devil's Fork AM Marinas: Hill Creek Fairfield Bay Heber Springs</p> <p>PM Ramps: Mill Creek South Fork PM Marinas: Dam Site Choctaw Narrows</p>

NEW SCHEDULE:

- ◆ Revised 6/1
- ◆ No AM/PM division
- ◆ All parks staffed all day on days assigned
- ◆ Reduces travel
- ◆ Allows for altered hours

JUNE						
SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9 Ramps OH25 Devil's Fork Marinas Dam Site Eden Isle Choctaw	10 Ramps Cove Creek Devil's Fork Marinas Dam Site Sugar Loaf Hill Creek			13 Ramps Cherokee Mill Creek Marinas Hill Creek Dam Site Eden Isle	14 Ramps Cherokee Cove Creek Marinas Narrows Heber Springs Fairfield Bay	
23 <i>contingency survey</i>	24 <i>contingency survey</i>	18 Ramps Cherokee Mill Creek Marinas Choctaw Shiloh Sugar Loaf	19 <i>contingency survey</i>	20 Ramps OH25 Mill Creek Marinas Shiloh Hill Creek Heber Springs	22 <i>contingency survey</i>	

Ramps: days assigned – total days staffed

OH25: 6/9 7/5 7/6 7/8 -- 4

Devil's Fork: 6/9 6/10 7/6 7/7 -- 4

Cherokee: 6/13 6/14 6/18 7/4 -- 4

Mill Creek: 6/13 6/18 6/20 7/4 7/8 -- 5

Cove Creek: 6/10 6/14 7/5 7/7 – 4

JULY						
SATURDAY	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
7 Ramps Devil's Fork Cove Creek Marinas Sugar Loaf Fairfield Bay Heber Springs	8 Ramps OH25 Mill Creek Marinas Dam Site Sugar Loaf Hill Creek			4 Ramps Cherokee Mill Creek Marinas Shiloh Eden Isle Narrows	5 Ramps Cove Creek OH25 Marinas Narrows Shiloh Eden Isle	6 Ramps OH25 Devil's Fork Marinas Fairfield Bay Heber Springs Choctaw (boat ramp only)

Marinas: days assigned – total days staffed

Dam Site: 6/9 6/10 6/13 7/8 – 4

Eden Isle: 6/9 6/13 7/4 7/5 – 4

Choctaw: 6/9 6/18 7/6 – 3

Sugar Loaf: 6/10 6/18 7/7 7/8 – 4

Hill Creek: 6/10 6/13 6/20 7/8 – 4

Shiloh: 6/18 6/20 7/4 7/5 – 4

Narrows: 6/14 7/4 7/5 – 3

Heber Springs: 6/14 6/20 7/6 7/7 – 4

Fairfield Bay: 6/14 7/6 7/7 – 3

Appendix B
Marina Owner Contact Addresses

Marina Owner Contact Addresses

Title	FirstName	LastName	Company	Address1	City	State	PostalCode
Mr.	John	Ison	Choctaw Marina, LLC	P.O. Box 219	Choctaw	AR	72028
Ms.	Robin	Walker	Dam Site Marina	P.O. Box 68	Heber Springs	AR	72543
Mr.	Ronnie	Walters	Eden Isle Marina	#10 Yacht Harbor Road	Heber Springs	AR	72543
Mr.	Greg	Roper	Heber Springs Marina, Inc.	P.O. Box 897	Heber Springs	AR	72543
Ms.	Pauline	Smith	Hill Creek Marina	P.O. Box 271	Greens Ferry	AR	72067
Mr.	Joe	Lacey	Lacey's Narrows Marina	P.O. Box 486	Higden	AR	72067
Mr.	Richard	Bailey	Shiloh Marina	1350 Shiloh Road	Greens Ferry	AR	72067
Mr.	Kenneth	Rector	Sugar Loaf Marina	P.O. Box 249	Higden	AR	72067
Mr.	Larry	Kaye	Fairfield Bay Marina	P.O. Box 1370	Fairfield Bay	AR	72088

Appendix C
Survey Instruments

LAKE BOATER SUMMER SURVEY

(Personal Interview)

OMB 0710-0001

Expires: 31 March 2002

The public report burden this information collection is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this data collection, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, Virginia 22202-4302, and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, Attn.: Desk Officer for U.S. Army Corps of Engineers. Respondents should be aware that notwithstanding any other provision of law, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Please **DO NOT RETURN** your completed form to either of these addresses.

LAKE BOATER SUMMER SURVEY

Questionnaire Number _____

Location _____ Date _____ Time _____

Interviewer _____

Party Size _____

Hello. My name is _____. I am working on behalf of the Corps of Engineers, and we are conducting a recreation survey at Greers Ferry Lake. The Corps of Engineers has been estimating the amount of recreation use at developed park areas at this project for some time. This survey is being done to learn more about the recreation activities of people living near the project. Would you be willing to take 20 minutes of your time to answer some questions about your household and your recreational use of Greers Ferry Lake? **ALL INFORMATION YOU PROVIDE IS VOLUNTARY AND WILL BE KEPT IN STRICT CONFIDENCE.**

I. VISITOR DESCRIPTION AND EXPERIENCE

1. Have you boated at Greers Ferry Lake before today? *(No answer necessary for marina slip renters, but please respond to the part below "IF YES")*

Yes ___ No ___

IF YES...

How many years have you been boating here? _____ YEARS (An approximate answer is O.K; If this is the first year, answer is "<1") *IF NO ...GO TO QUESTION 3.*

2. About how many days of the following did you boat on Greers Ferry Lake in 2000?

WEEKEND DAYS IN 2000 _____

WEEK DAYS IN 2000 _____

3. How far is this launch ramp or marina from your permanent home? _____ MILES

II. DESCRIPTION OF PRESENT VISIT

4. Is this a one-day visit? _____ Yes _____ No

If NO.. How many days will you be visiting Greers Ferry Lake? _____ Days

5. How many hours did you spend on the lake today? _____ Hours

6a. What type of boat did you use on the lake today?

1. Canoe

2. Row boat

3. Bass fishing boat

4. Runabout

5. Sail boat

6. Cabin cruiser

7. Houseboat

8. Windsurfer

9. Pontoon boat

10. Jet ski

11. Other (describe): _____

If the boat is motorized:

6b. How many horsepower is your boat? _____ HP

6c. What is the length of your boat? _____ FEET

7. Here is a list of activities you may have participated in today. Can you tell me approximately how much time you spent on these activities today?

1. Water-skiing: _____ hours
2. Tubing: _____ hours
3. Fishing: _____ hours
4. Personal Watercraft (Jet Ski) Use: _____ hours
5. Sailing: _____ hours
6. Swimming: _____ hours
7. Pleasure Boating: _____ hours
8. Rafting: _____ hours
9. Row boating: _____ hours
10. Other activities (describe): _____ hours

III. SPATIAL USE CHARACTERISTICS AND PERCEPTIONS OF CONDITIONS

8. What areas of the lake did you visit today and what did you do in each area visited?

(Please refer to the map of the lake)

(Indicate all areas visited and activities for each area)

Why did you choose the particular area for those activities? *(Please indicate the reasons under REASONS below)*

AREA	ACTIVITIES	REASON
Area 1	__ waterski __ PWC __ pleasure boat __ tubing __ sail __ rafting __ fish __ swim __ rowboating	
Area 2	__ waterski __ PWC __ pleasure boat __ tubing __ sail __ rafting __ fish __ swim __ rowboating	
Area 3	__ waterski __ PWC __ pleasure boat __ tubing __ sail __ rafting __ fish __ swim __ rowboating	
Area 4	__ waterski __ PWC __ pleasure boat __ tubing __ sail __ rafting __ fish __ swim __ rowboating	
Area 5	__ waterski __ PWC __ pleasure boat __ tubing __ sail __ rafting __ fish __ swim __ rowboating	

9. Why did you choose this boat ramp today *(if applicable)*?

10a. Do you have a favorite place to go on Greers Ferry Lake? (*Name or describe places below*)

- 1.
- 2.
- 3.
- 4.

10b. Why is that/are those your favorite place(s)? (*For each place listed above, please list at least one reason*)

- 1.
- 2.
- 3.
- 4.

10c. Are there any areas of Greers Ferry Lake you deliberately avoid? (*Name or describe areas below*)

- 1.
- 2.
- 3.
- 4.

10d. Why do you avoid those areas? (*For each area listed above, please list at least one reason*)

- 1.
- 2.
- 3.
- 4.

IV. LAKE CONGESTION

11. Which of these statements best describes your expectation for the number of boats on Greers Ferry Lake? (*Read all three and check one*)

- I saw ABOUT AS MANY boats as I *expected* to see today.
 I saw MORE boats than I *expected* to see today.
 I saw FEWER boats than I *expected* to see today.

12. Which of these statements best describes your preference for the number of boats on Greers Ferry Lake? (*Read all three and check one*)

- I saw ABOUT AS MANY boats as I *wanted* to see today.
 I saw MORE boats than I *wanted* to see today.
 I saw FEWER boats than I *wanted* to see today.

V. MANAGEMENT QUESTIONS

13. For each of the following, please check one box to indicate that you feel that at Greers Ferry Lake there are TOO FEW/LITTLE, an ADEQUATE NUMBER/AMOUNT, TOO MANY/MUCH, or DON'T KNOW.

	TOO FEW/LITTLE	ADEQUATE NUMBER/ AMOUNT	TOO MANY/MUCH	DON'T KNOW
a. Campgrounds				
b. Swimming beaches				
c. Boat ramps				
d. Picnic areas				
e. Playgrounds				
f. Docks				
g. Marinas				
h. Parking facilities				
i. Commercial establishments				
j. People				
k. Fishermen				
l. SCUBA divers				
m. Pleasure boaters				
n. PWCs/Jet skis				
o. Sail boats				
p. No wake zones				

14. For each of the following statements, please CHECK ONE BOX to indicate if you STRONGLY DISAGREE, DISAGREE, are NEUTRAL, AGREE, or STRONGLY AGREE.

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
a. There are an adequate number of facilities on the lake.					
b. Private docks interfere with my use of the lake.					
c. Facilities at the lake are adequately maintained.					
d. Lakefront homeowners should be allowed to clear underbrush along the shoreline.					
e. Lakefront homeowners should be allowed to clear trees along the shoreline.					
g. There are too many private docks on the lake.					

15. The following questions use response categories of *Not a Problem to Very Serious Problem*. Please check the box that most appropriately indicates your opinion for each problem area.

Problem	Not a Problem	Slight Problem	Moderate Problem	Serious Problem	Very Serious Problem
a. Erosion of banks					
b. Obstructions in the water					
c. Overhanging trees/branches					
d. Muddy water					
e. Water pollution					
f. Litter on the banks					
g. Litter in the water					
h. Human body waste					
i. People shouting and yelling					
j. People being inconsiderate					
k. Boats speeding					
l. Crime					

VI. QUALITY OF VISIT

16. Was there anything that detracted from your visit today?

- 1.
- 2.
- 3.
- 4.

17. Where were you when the thing(s) that detracted from your enjoyment occurred?

(CHECK ALL LOCATIONS THAT APPLY)

- | | |
|--------------------------------------|------------------------------------------------|
| <input type="checkbox"/> On lake | <input type="checkbox"/> Boat launch |
| <input type="checkbox"/> Picnic area | <input type="checkbox"/> Campground |
| <input type="checkbox"/> Beach | <input type="checkbox"/> Other location: _____ |

18. How often today did you hear boat noise? *(CIRCLE RESPONSE)*

NEVER ONCE OCCASIONALLY OFTEN VERY OFTEN

19. Did hearing boat noise... *(CIRCLE NUMBER)*

- 1. DETRACT from your enjoyment?
- 2. ADD to your enjoyment?
- or 3. NEITHER ADD NOR DETRACT from your enjoyment?

V. VISITOR PERCEPTIONS OF CHANGES OCCURRING AND CHANGES DESIRED

20a. Have you noticed any positive or negative changes at Greers Ferry Lake in the last five years?

(or since boating here if less than 5 years) (SKIP QUESTION IF FIRST-TIME VISITOR)

Positive:

- 1.
- 2.
- 3.
- 4.

Negative:

- 1.
- 2.
- 3.
- 4.

IF YES...

20b. How have these changes affected your enjoyment or use of Greers Ferry Lake?

21. What changes would you like to see at Greers Ferry Lake?

22. What do you like best about Greers Ferry Lake?

(Please list specific physical or social conditions, not times, days, or locations)

- 1.
- 2.
- 3.
- 4.

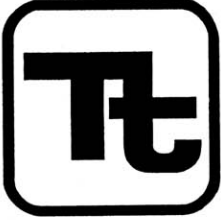
23. Where is your permanent residence?

City _____ State _____ Zip code _____

VI. ADDITIONAL COMMENTS

24. Are there any additional comments you would like to make concerning Greers Ferry Lake?

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY!



TETRA TECH, INC.
10306 Eaton Pl., Suite 340
Fairfax, VA 22030
Telephone (703) 385-6000
FAX (703) 385-6007

Dear Greers Ferry Lake area marina slip renter:

The Corps of Engineers is conducting a recreation survey for Greers Ferry Lake this summer. The purpose of the survey is to determine the use preferences of persons living near the lake. The information will be used to help the Corps of Engineers understand the needs of the people who live near the lake better so that management efforts can respond to those needs.

The enclosed questionnaire is estimated to take no more than 20 minutes to complete. It has been sent to only a small percentage of persons living in the areas surrounding the lake. Hence, your response is very important to us to ensure that we have enough responses to draw conclusions about the preferences of area residents.

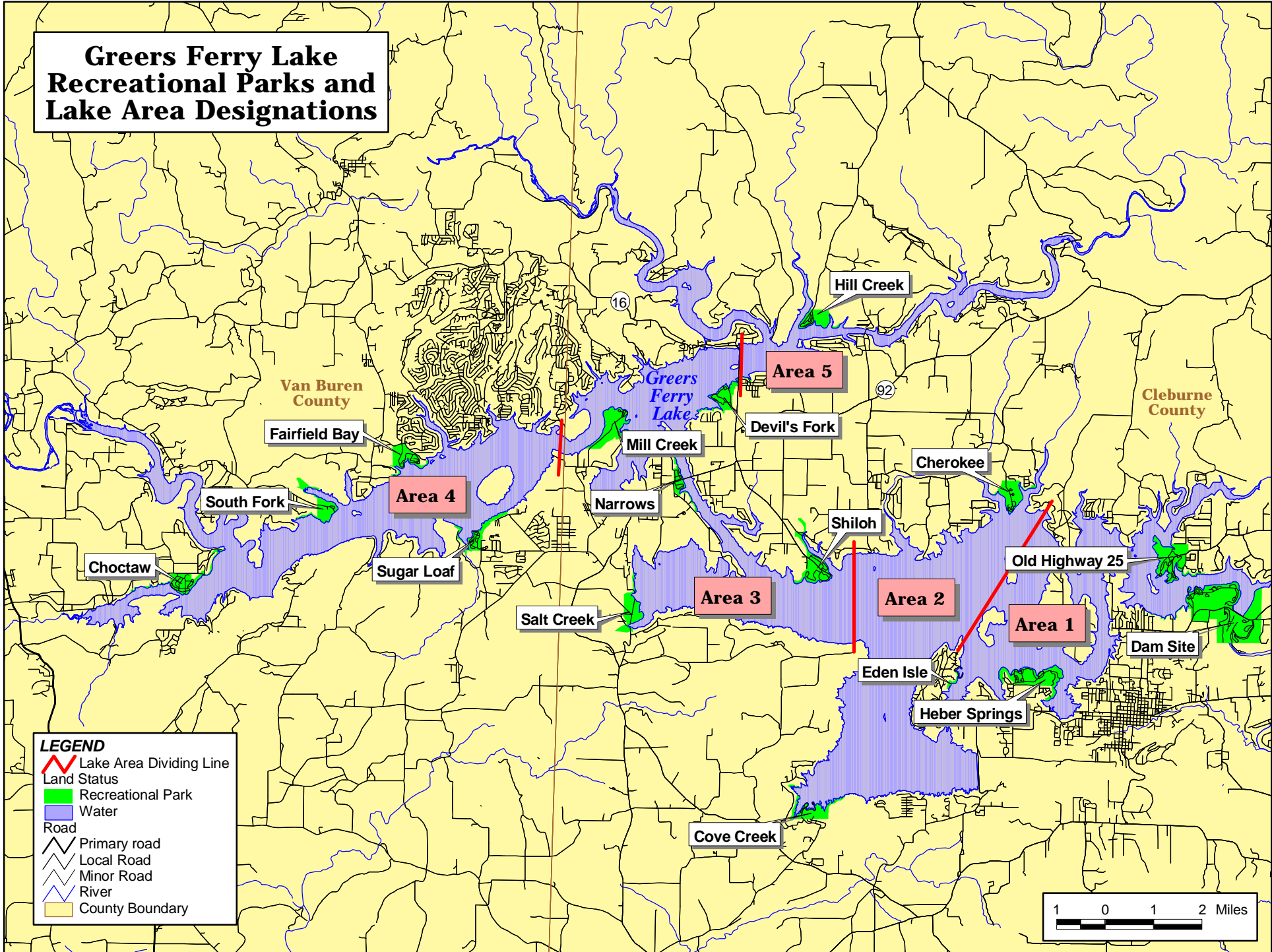
Please take a few minutes to fill out the enclosed questionnaire and then return it in the stamped, addressed envelope enclosed. Individual responses will be kept strictly confidential. Your cooperation is very much appreciated.

Sincerely,

Sam Pett
Tetra Tech, Inc
Assistant to the Corps of Engineers

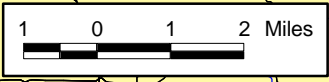
P.S. Please leave the space for "Questionnaire Number" on the first page of the questionnaire blank.

Greers Ferry Lake Recreational Parks and Lake Area Designations



LEGEND

- Lake Area Dividing Line
- Land Status**
- Recreational Park
- Water
- Road**
- Primary road
- Local Road
- Minor Road
- River
- County Boundary



LAKE SLIP RENTER SUMMER SURVEY

(Mailed Interview)

OMB 0710-0001

Expires: 31 March 2002

The public report burden this information collection is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this data collection, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, Virginia 22202-4302, and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, Attn.: Desk Officer for U.S. Army Corps of Engineers. Respondents should be aware that notwithstanding any other provision of law, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Please DO NOT RETURN your completed form to either of these addresses.

LAKE SLIP RENTER SUMMER SURVEY

Questionnaire Number _____ Date Completed _____

The Corps of Engineers is conducting a recreation survey at Greers Ferry Lake. The Corps of Engineers has been estimating the amount of recreation use at developed park areas at this project for some time. This survey is being done to learn more about the recreation activities of people living near the project. Please take 20 minutes of your time to answer some questions about your recreation use of Greers Ferry Lake. ALL INFORMATION YOU PROVIDE IS VOLUNTARY AND WILL BE KEPT IN STRICT CONFIDENCE.

PLEASE NOTE: If any question is not applicable to your situation, please indicate so and note why.

I. VISITOR DESCRIPTION

1. How many years have you been boating at Greers Ferry Lake? _____ YEARS
2. About how many days of the following did you boat on Greers Ferry Lake in 2000?
 WEEKEND DAYS IN 2000 _____
 WEEK DAYS IN 2000 _____
 TOTAL DAYS _____
3. Please indicate the type, horsepower, and length of boat(s) you use on Greers Ferry Lake:

1. Canoe	_____ HP	_____ FEET
2. Row boat	_____ HP	_____ FEET
3. Bass fishing boat	_____ HP	_____ FEET
4. Runabout	_____ HP	_____ FEET
5. Sail boat	_____ HP	_____ FEET
6. Cabin cruiser	_____ HP	_____ FEET
7. Houseboat	_____ HP	_____ FEET
8. Windsurfer	_____ HP	_____ FEET
9. Pontoon boat	_____ HP	_____ FEET
10. Jet ski	_____ HP	
11. Other: _____	_____ HP	_____ FEET
4. Below is a list of activities you may participate in at Greers Ferry Lake. Please indicate the percentage of your time you spend on these activities when you are recreating on the lake?

1. Water-skiing _____%	8. Rafting _____%
2. Tubing _____%	9. Row boating _____%
3. Fishing _____%	10. Other activities: _____%
4. Personal Watercraft (Jet Ski) Use _____%	(BE SURE RESPONSES =100%)
5. Sailing _____%	
6. Swimming _____%	
7. Pleasure Boating _____%	

II. SPATIAL USE CHARACTERISTICS AND PERCEPTIONS OF CONDITIONS

5. What areas of the lake do you visit and what do you do in each area visited? *(Please refer to the map of the lake)*
(Indicate all areas visited and activities for each area)

Please note why do you choose the particular area for those activities under REASON.

AREA	ACTIVITIES	REASON
Area 1		
Area 2		
Area 3		
Area 4		
Area 5		

6a. Do you have a favorite place to go on Greers Ferry Lake?
(Name or describe locations below)

- 1. _____
- 2. _____
- 3. _____
- 4. _____

6b. Why is that/are those your favorite place(s)?
(For each place listed above, please list at least one reason)

- 1. _____
- 2. _____
- 3. _____
- 4. _____

6c. Are there any parts of Greers Ferry Lake you deliberately avoid?
(Name or describe parts below)

- 1. _____
- 2. _____
- 3. _____
- 4. _____

6d. Why do you avoid that/those parts?
(For each part listed above, please list at least one reason)

- 1. _____
- 2. _____
- 3. _____
- 4. _____

III. LAKE CONGESTION

7. Which of these statements best describes your expectation for the number of boats on Greers Ferry Lake?(Read all three and check one)

- a. ___ I see ABOUT AS MANY boats as I *expect* to see.
- b. ___ I see MORE boats than I *expect* to see.
- c. ___ I see FEWER boats than I *expect* to see.

8. Which of these statements best describes your preference for the number of boats on Greers Ferry Lake?(Read all three and check one)

- a. ___ I see ABOUT AS MANY boats as I *want* to see.
- b. ___ I see MORE boats than I *want* to see.
- c. ___ I see FEWER boats than I *want* to see.

IV. MANAGEMENT QUESTIONS

9. For each of the following, please circle the appropriate number to indicate whether you feel that at Greers Ferry Lake there are TOO FEW/LITTLE, an ADEQUATE NUMBER/AMOUNT, TOO MANY/MUCH, or DON'T KNOW.

	TOO FEW/LITTLE	ADEQUATE NUMBER/AMOUNT	TOO MANY/MUCH	DON'T KNOW
a. Campgrounds	1	2	3	4
b. Swimming beaches	1	2	3	4
c. Boat ramps	1	2	3	4
d. Picnic areas	1	2	3	4
e. Playgrounds	1	2	3	4
f. Docks	1	2	3	4
g. Marinas	1	2	3	4
h. Parking facilities	1	2	3	4
i. Commercial establishments	1	2	3	4
j. People	1	2	3	4
k. Fishermen	1	2	3	4
l. SCUBA divers	1	2	3	4
m. Pleasure boaters	1	2	3	4
n. Boat noise	1	2	3	4
o. PWCs/Jet skis	1	2	3	4
p. Sail boats	1	2	3	4
q. No wake zones	1	2	3	4

10. For each of the following statements, please CHECK ONE BOX to indicate if you STRONGLY DISAGREE, DISAGREE, are NEUTRAL, AGREE, or STRONGLY AGREE.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. There are an adequate number of facilities on the lake.	1	2	3	4	5
b. Private docks interfere with my use of the lake.	1	2	3	4	5
c. Facilities at the lake are adequately maintained.	1	2	3	4	5
d. Lakefront homeowners should be allowed to clear underbrush along the shoreline.	1	2	3	4	5
e. Lakefront homeowners should be allowed to clear trees along the shoreline.	1	2	3	4	5
g. There are too many private docks on the lake.	1	2	3	4	5

11. The following questions use response categories of *Not a Problem* to *Very Serious Problem*. Please check the box that most appropriately indicates your opinion for each problem area.

PROBLEM	NOT A PROBLEM	SLIGHT PROBLEM	MODERATE PROBLEM	SERIOUS PROBLEM	VERY SERIOUS PROBLEM
a. Erosion of banks	1	2	3	4	5
b. Obstructions in the water	1	2	3	4	5
c. Overhanging trees/branches	1	2	3	4	5
d. Muddy water	1	2	3	4	5
e. Water pollution	1	2	3	4	5
f. Litter on the banks	1	2	3	4	5
g. Litter in the water	1	2	3	4	5
h. Human body waste	1	2	3	4	5
i. People shouting and yelling	1	2	3	4	5
j. People being inconsiderate	1	2	3	4	5
k. Boats speeding	1	2	3	4	5
l. Crime	1	2	3	4	5

V. VISITOR PERCEPTIONS OF CHANGES OCCURRING AND CHANGES DESIRED

12a. Have you noticed any positive or negative changes at Greers Ferry Lake in the last five years (*or since you have been visiting Greers Ferry Lake*).

Positive:

1. _____
2. _____
3. _____
4. _____

Negative:

1. _____
2. _____
3. _____
4. _____

IF YES...

12b. How have these changes affected your enjoyment or use of Greers Ferry Lake?

13. What changes would you like to see at Greers Ferry Lake?

14. What do you like best about Greers Ferry Lake?

(Probe for specific physical or social conditions not times, days, or locations)

1. _____
2. _____
3. _____
4. _____

15. Where is your permanent residence?

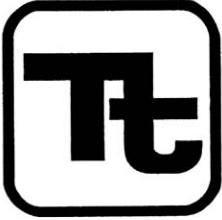
City _____ State _____ Zip code _____

16. How far is Greers Ferry Lake from your permanent home? _____ MILES

VI. ADDITIONAL COMMENTS

17. Are there any additional comments you would like to make concerning Greers Ferry Lake?

THANK YOU FOR COMPLETING THE SURVEY!



TETRA TECH, INC.
10306 Eaton Pl., Suite 340
Fairfax, VA 22030
Telephone (703) 385-6000
FAX (703) 385-6007

Dear Greers Ferry Lake area resident:

The Corps of Engineers is conducting a recreation survey for Greers Ferry Lake this summer. The purpose of the survey is to determine the use preferences of persons living near the lake. The information will be used to help the Corps of Engineers understand the needs of the people who live near the lake better so that management efforts can respond to those needs.

The enclosed questionnaire is estimated to take no more than 20 minutes to complete. It has been sent to only a small percentage of persons living in the areas surrounding the lake. Hence, your response is very important to us to ensure that we have enough responses to draw conclusions about the preferences of area residents.

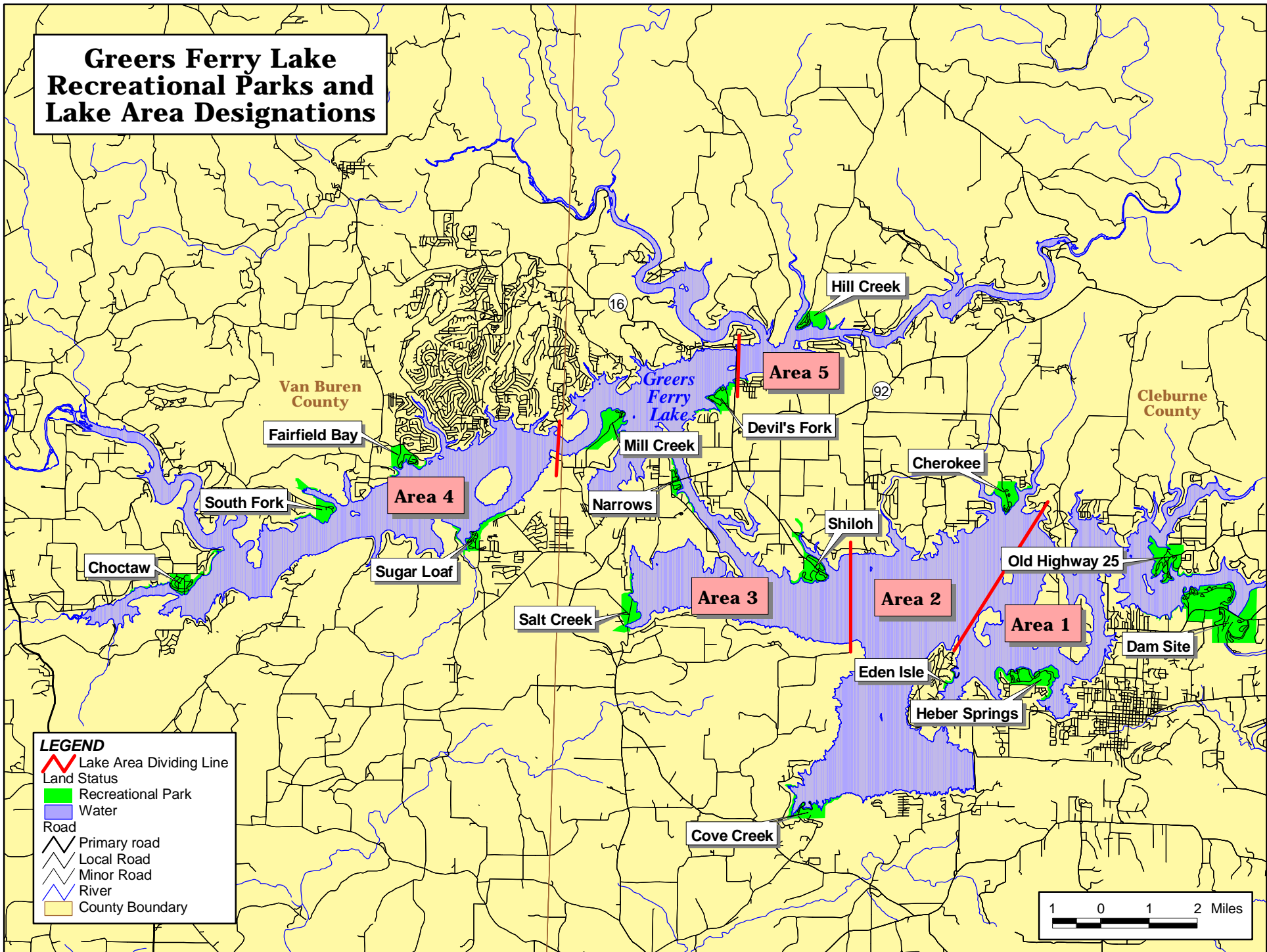
Please take a few minutes to fill out the enclosed questionnaire and then return it in the stamped, addressed envelope enclosed. Individual responses will be kept strictly confidential. Your cooperation is very much appreciated.

Sincerely,

Sam Pett
Tetra Tech, Inc
Assistant to the Corps of Engineers

P.S. Please leave the space for "Questionnaire Number" on the first page of the questionnaire blank.

Greers Ferry Lake Recreational Parks and Lake Area Designations



ADJACENT LANDOWNER SUMMER SURVEY

(Mailed Interview)

OMB 0710-0001

Expires: 31 March 2002

The public report burden this information collection is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this data collection, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, Virginia 22202-4302, and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, Attn.: Desk Officer for U.S. Army Corps of Engineers. Respondents should be aware that notwithstanding any other provision of law, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Please DO NOT RETURN your completed form to either of these addresses.

Adjacent Landowner Summer Survey

Questionnaire Number _____ Date Completed _____

The Corps of Engineers is conducting a recreation survey at Greers Ferry Lake. The Corps of Engineers has been estimating the amount of recreation use at developed park areas at this project for some time. This survey is being done to learn more about the recreation activities of people living near the project. Please take 20 minutes of your time to answer some questions about your recreation use of Greers Ferry Lake. ALL INFORMATION YOU PROVIDE IS VOLUNTARY AND WILL BE KEPT IN STRICT CONFIDENCE.

PLEASE NOTE: If you do not visit or recreate at Greers Ferry Lake, please indicate so below. If this is the case, please then respond only to questions 16-18 at the end and return it.

I do not visit or recreate at Greers Ferry Lake. _____

I. LANDOWNER DESCRIPTION

1. Do you or any members of this household own or have partial interest in a boat or watercraft operated on Greers Ferry Lake? (Include jet skis and windsurfing boards as watercraft.)

1. YES... If yes, describe below each type of boat you have, length of boat(s), the type of storage used, and the location of boat(s) during the summer months.

2. NO (Skip questions 2-4 and proceed directly to Question 5)

a. Boat Type (please insert code from below)	b. Boat Length (feet)	c. Storage (please insert code)	d. Location (please insert code)

Boat Type Codes:	Storage Codes:	Location Codes:
1 = Canoe 2 = Row Boat 3 = Bass Fishing Boat 4 = Runabout 5 = Sailboat 6 = Cabin Cruiser 7 = Houseboat	8 = Windsurf Board 9 = Pontoon Boat 10 = Jet Ski 11 = Other (Describe): _____ _____ _____	1 = At Home 2 = Private Dock (Permitted) 3 = Marina (On Lake) 4 = Commercial (Off Lake)

2. How many years have you been boating at Greers Ferry Lake? _____ YEARS

3. About how many days of the following did you boat on Greers Ferry Lake in 2000?

a. Weekend Days in 2000 _____

b. Week Days 2000 _____

4. What boat ramp or marina do you use at Greers Ferry Lake? _____

5. Below is a list of activities you may participate in at Greers Ferry Lake. Please indicate the approximate percentage of time you spend on these activities when you are *recreating on* the lake?

1. Water-skiing _____%

2. Tubing _____%

3. Fishing _____%

4. Personal Watercraft (Jet Ski) Use _____%

5. Sailing _____%

6. Swimming _____%

7. Pleasure Boating _____%

8. Rafting _____%

9. Row boating _____%

10. Other activities: _____ %

(Be sure responses =100%)

II. SPATIAL USE CHARACTERISTICS AND PERCEPTIONS OF CONDITIONS

6. What areas of the lake do you visit and what do you do in each area visited?

(Please refer to the map of the lake)

(Indicate all areas visited and activities for each area)

Please note why do you choose the particular area for those activities under REASON.

AREA	ACTIVITIES	REASON
Area 1		
Area 2		
Area 3		
Area 4		
Area 5		

7a. Do you have a favorite place to go on Greers Ferry Lake?

(Name or describe locations below)

1. _____
2. _____
3. _____
4. _____

7b. Why is that/are those your favorite place(s)?

(For each place listed above, please list at least one reason)

1. _____
2. _____
3. _____
4. _____

7c. Are there any parts of Greers Ferry Lake you deliberately avoid?

(Name or describe parts below)

1. _____
2. _____
3. _____
4. _____

7d. Why do you avoid that/those parts?

(For each part listed above, please list at least one reason)

1. _____
2. _____
3. _____
4. _____

III. LAKE CONGESTION

8. Which of these statements best describes your expectation for the number of boats on Greers Ferry Lake?
(Read all three and check one)
- a. ___ I see ABOUT AS MANY boats as I *expect* to see.
 - b. ___ I see MORE boats than I *expect* to see.
 - c. ___ I see FEWER boats than I *expect* to see.
9. Which of these statements best describes your preference for the number of boats on Geers Ferry Lake?
(Read all three and check one)
- a. ___ I see ABOUT AS MANY boats as I *expect* to see.
 - b. ___ I see MORE boats than I *expect* to see.
 - c. ___ I see FEWER boats than I *expect* to see.

IV. MANAGEMENT QUESTIONS

11. For each of the following statements, please circle one number to indicate if you Strongly Disagree, Disagree, are Neutral, Agree, or Strongly Agree.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
a. There are an adequate number of facilities on the lake.	1	2	3	4	5
b. Private docks interfere with my use of the lake.	1	2	3	4	5
c. Facilities at the lake are adequately maintained.	1	2	3	4	5
d. Lakefront homeowners should be allowed to clear underbrush along the shoreline.	1	2	3	4	5
e. Lakefront homeowners should be allowed to clear trees along the shoreline	1	2	3	4	5
f. There are too many private docks on the lake.	1	2	3	4	5

12. The following questions use response categories of *Not a Problem* to *Very Serious Problem*. Please check the box that most appropriately indicates your opinion for each problem area.

Problem	Not a Problem	Slight Problem	Moderate Problem	Serious Problem	Very Serious
a. Erosion of banks	1	2	3	4	5
b. Obstructions in the water	1	2	3	4	5
c. Overhanging trees/branches	1	2	3	4	5
d. Muddy water	1	2	3	4	5
e. Water pollution	1	2	3	4	5
f. Litter on the banks	1	2	3	4	5
g. Litter in the water	1	2	3	4	5
h. Human body waste	1	2	3	4	5
i. People shouting and yelling	1	2	3	4	5
j. People being inconsiderate	1	2	3	4	5
k. Boats speeding	1	2	3	4	5
l. Crime	1	2	3	4	5

V. PERCEPTIONS OF CHANGES OCCURRING AND CHANGES DESIRED

13a. Have you noticed any positive or negative changes at Greers Ferry Lake in the last five years (*or since you have been coming to Greers Ferry Lake*).

Positive:

1. _____
2. _____
3. _____
4. _____

Negative:

1. _____
2. _____
3. _____
4. _____

IF YES...

13b. How have these changes affected your enjoyment or use of Greers Ferry Lake?

14. What changes would you like to see at Greers Ferry Lake?

15. What do you like best about Greers Ferry Lake?

(Probe for specific physical or social conditions not times, days, or locations)

1. _____
2. _____
3. _____
4. _____

16. Where is your permanent residence?

City _____ State _____ Zip code _____

17. How far is Greers Ferry Lake from your permanent home? _____ MILES

VI. ADDITIONAL COMMENTS

18. Are there any additional comments you would like to make concerning Greers Ferry Lake?

THANK YOU FOR COMPLETING THE SURVEY!



Reminder

A week ago I sent a Greers Ferry Lake Boater Survey to you. I hope you have received it, completed it, and sent it back. If so, thank you very much. The survey is part of an effort to evaluate use of the lake and issues of concern to boaters, and is part of a larger environmental impact statement (EIS) effort for Greers Ferry Lake.

If you have not completed the survey yet, please do so as soon as you can. It should take 20 minutes or less, and your response is very important for future lake management planning.

If you did not receive the survey or have misplaced it, please call me at (703) 385-6000, extension 159, or email me at pettsa@tetrattech-ffx.com. I will be happy to send a replacement.

Thank you very much for your time and effort.
Sam Pett, Tetra Tech, Inc.



Reminder

A week ago I sent a Greers Ferry Lake Boater Survey to you. I hope you have received it, completed it, and sent it back. If so, thank you very much. The survey is part of an effort to evaluate use of the lake and issues of concern to boaters, and is part of a larger environmental impact statement (EIS) effort for Greers Ferry Lake.

If you have not completed the survey yet, please do so as soon as you can. It should take 20 minutes or less, and your response is very important for future lake management planning.

If you did not receive the survey or have misplaced it, please call me at (703) 385-6000, extension 159, or email me at pettsa@tetrattech-ffx.com. I will be happy to send a replacement.

Thank you very much for your time and effort.
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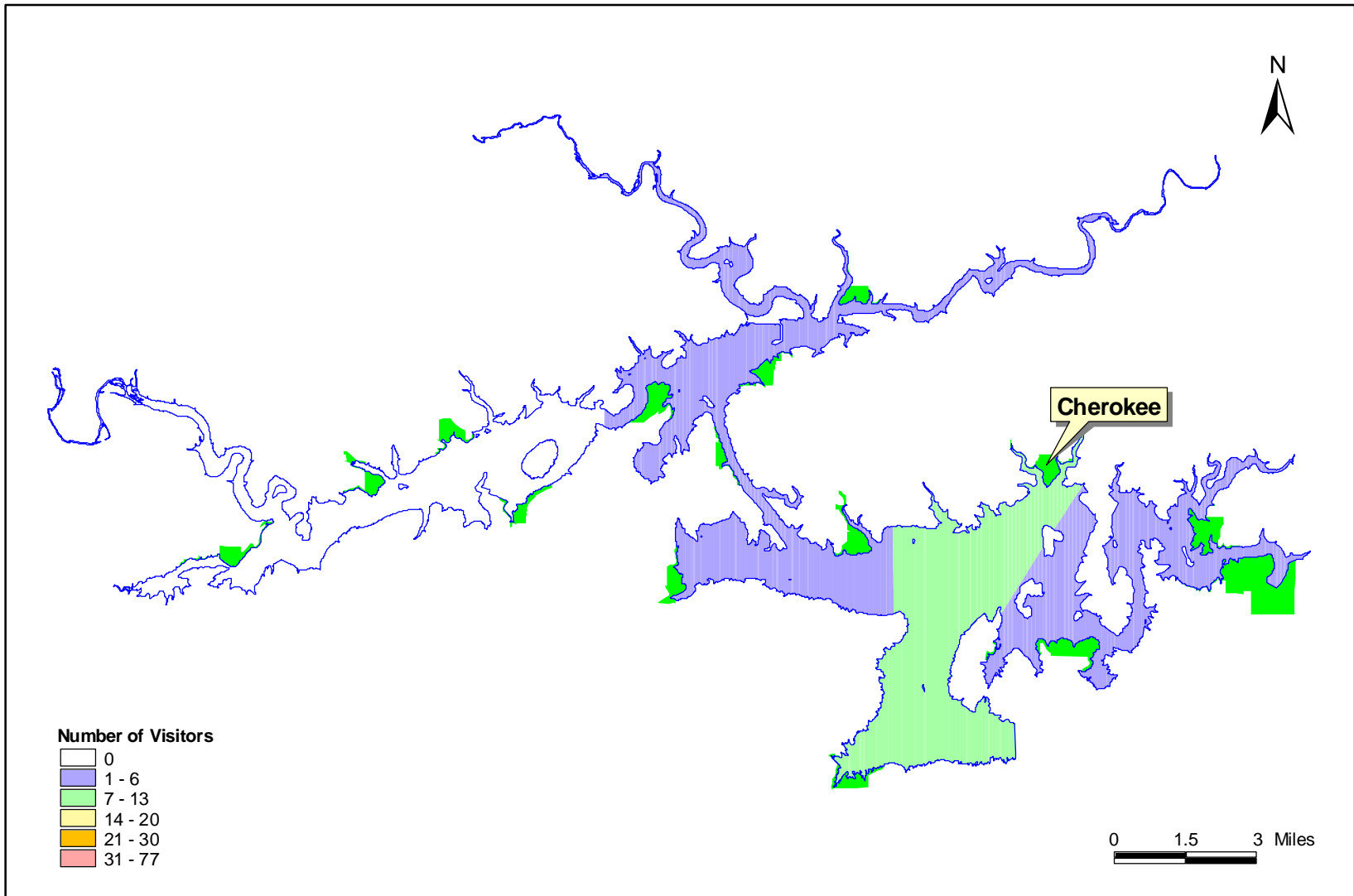
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Appendix D
Lake Area Use Maps

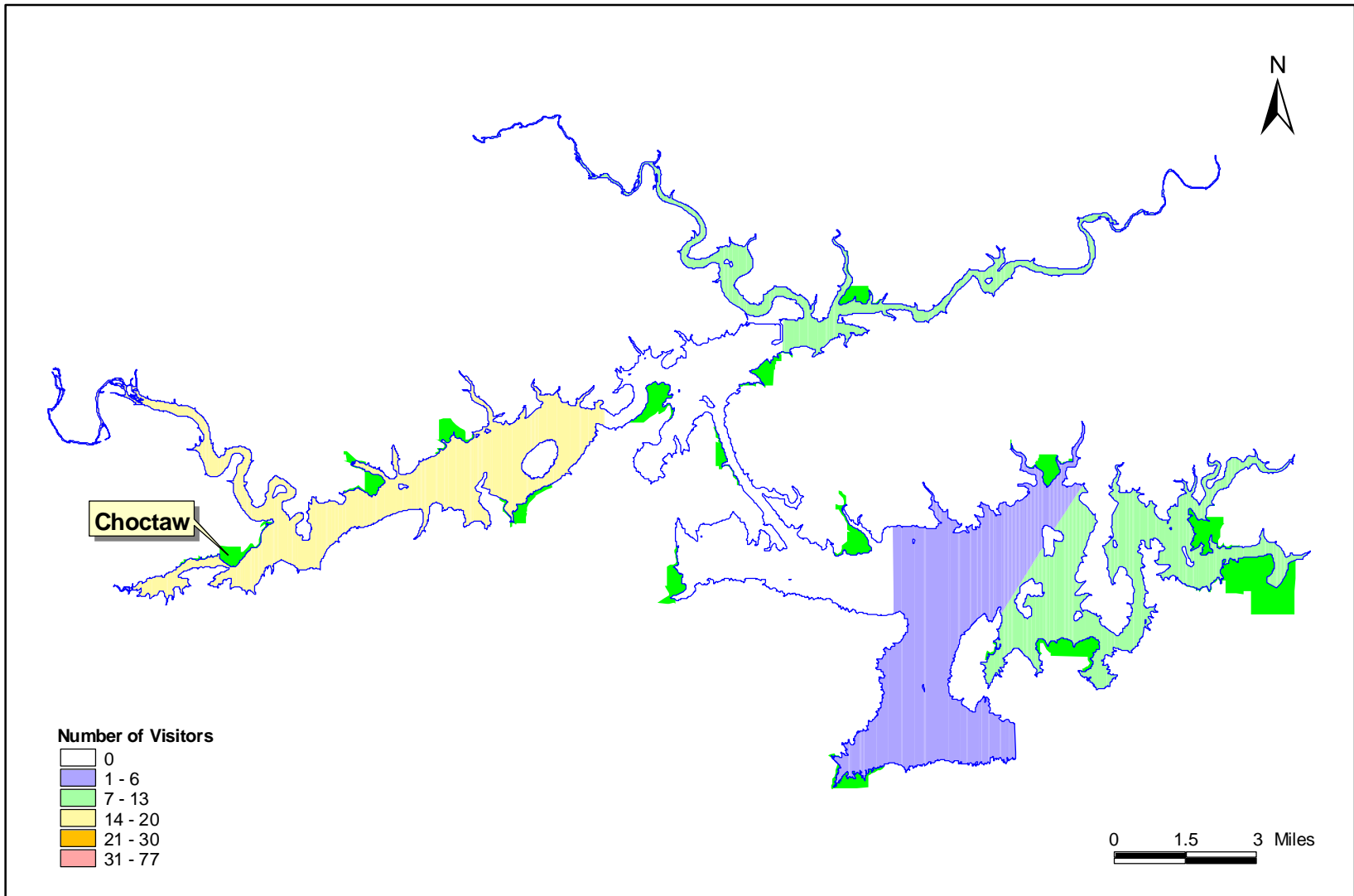


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Cherokee Park

Source: Survey Data, 2001.

Figure 1

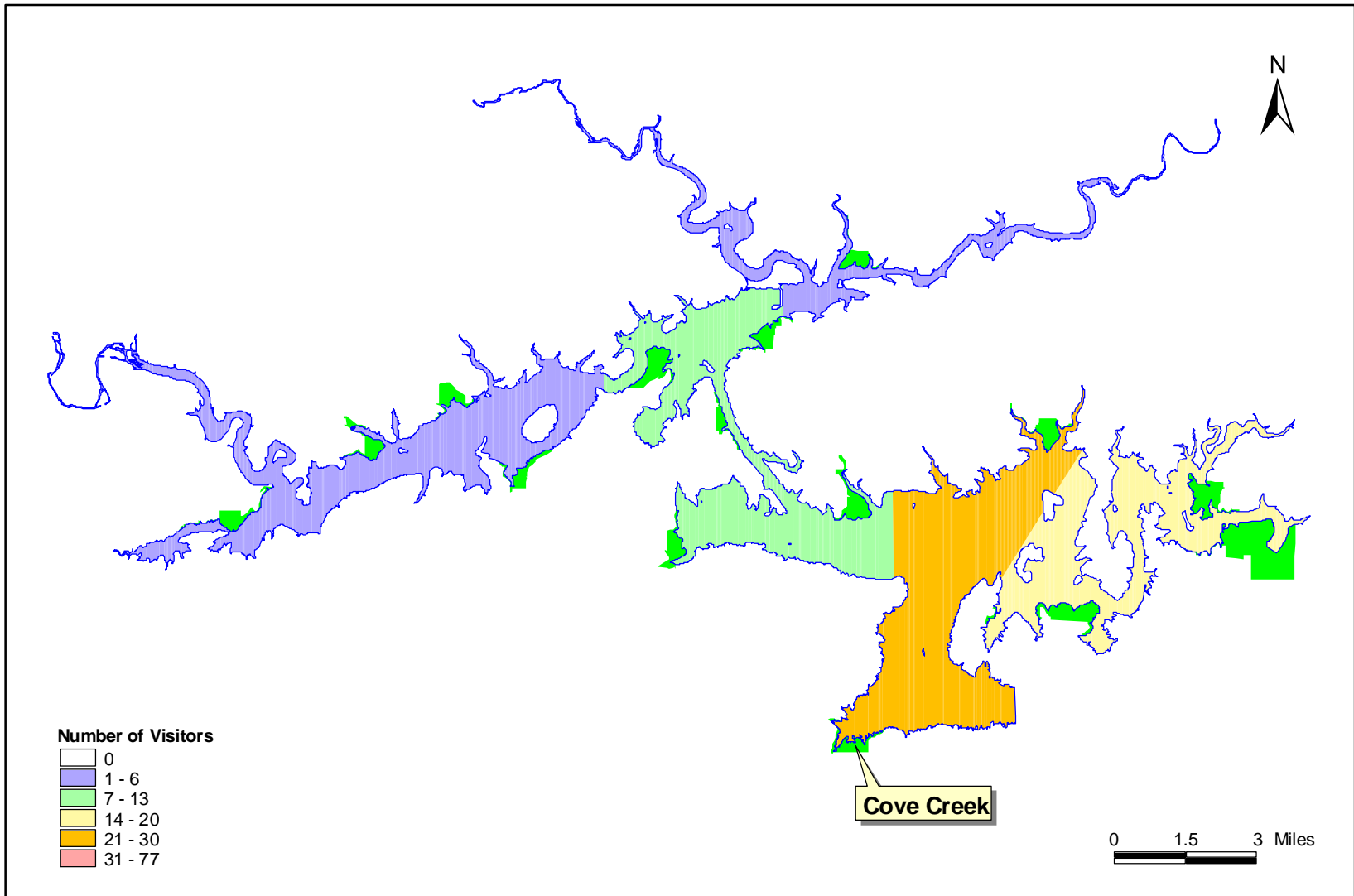


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Choctaw Park

Source: Survey Data, 2001.

Figure 2

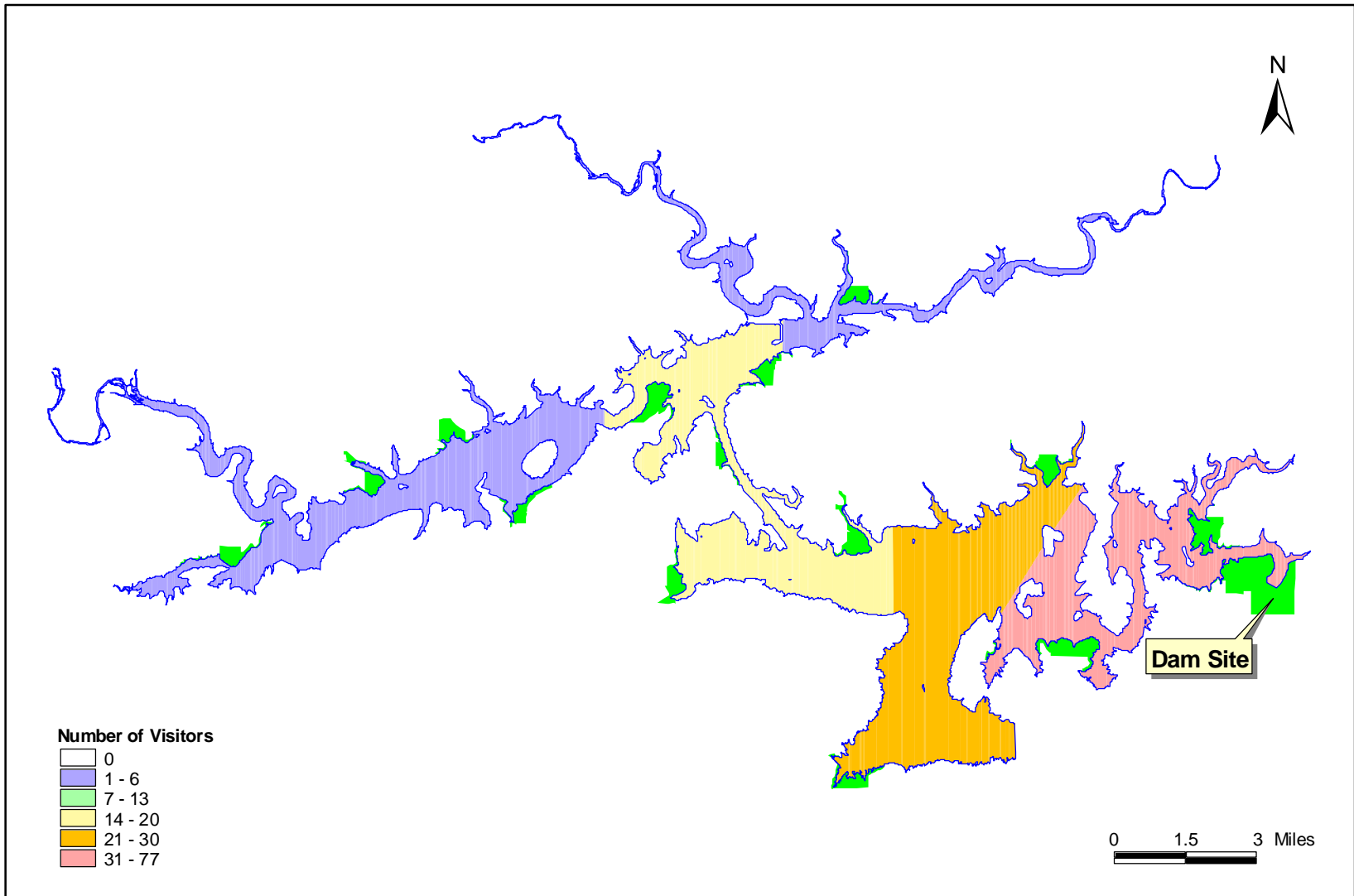


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Cove Creek Park

Source: Survey Data, 2001.

Figure 3

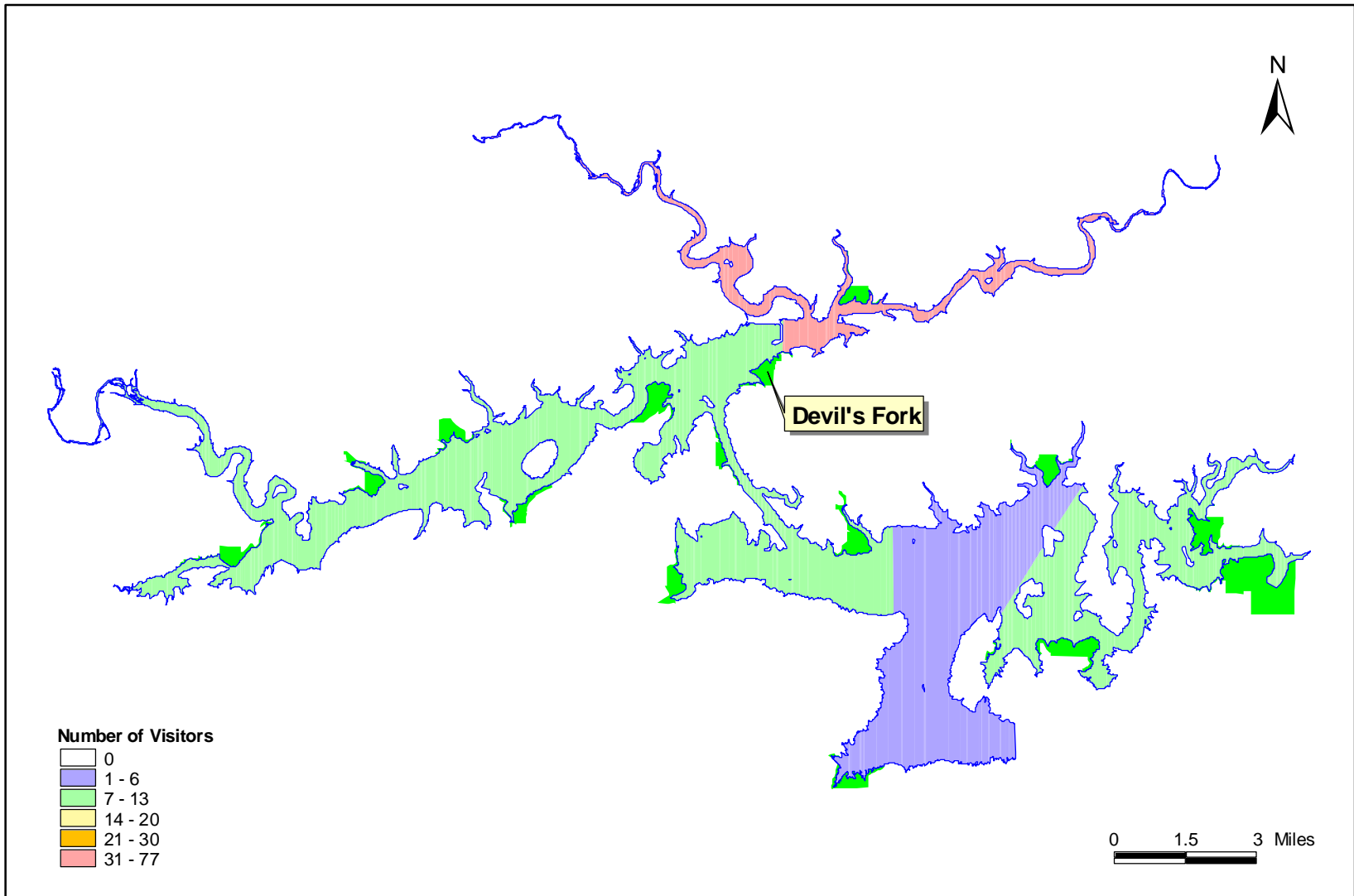


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Dam Site Park

Source: Survey Data, 2001.

Figure 4

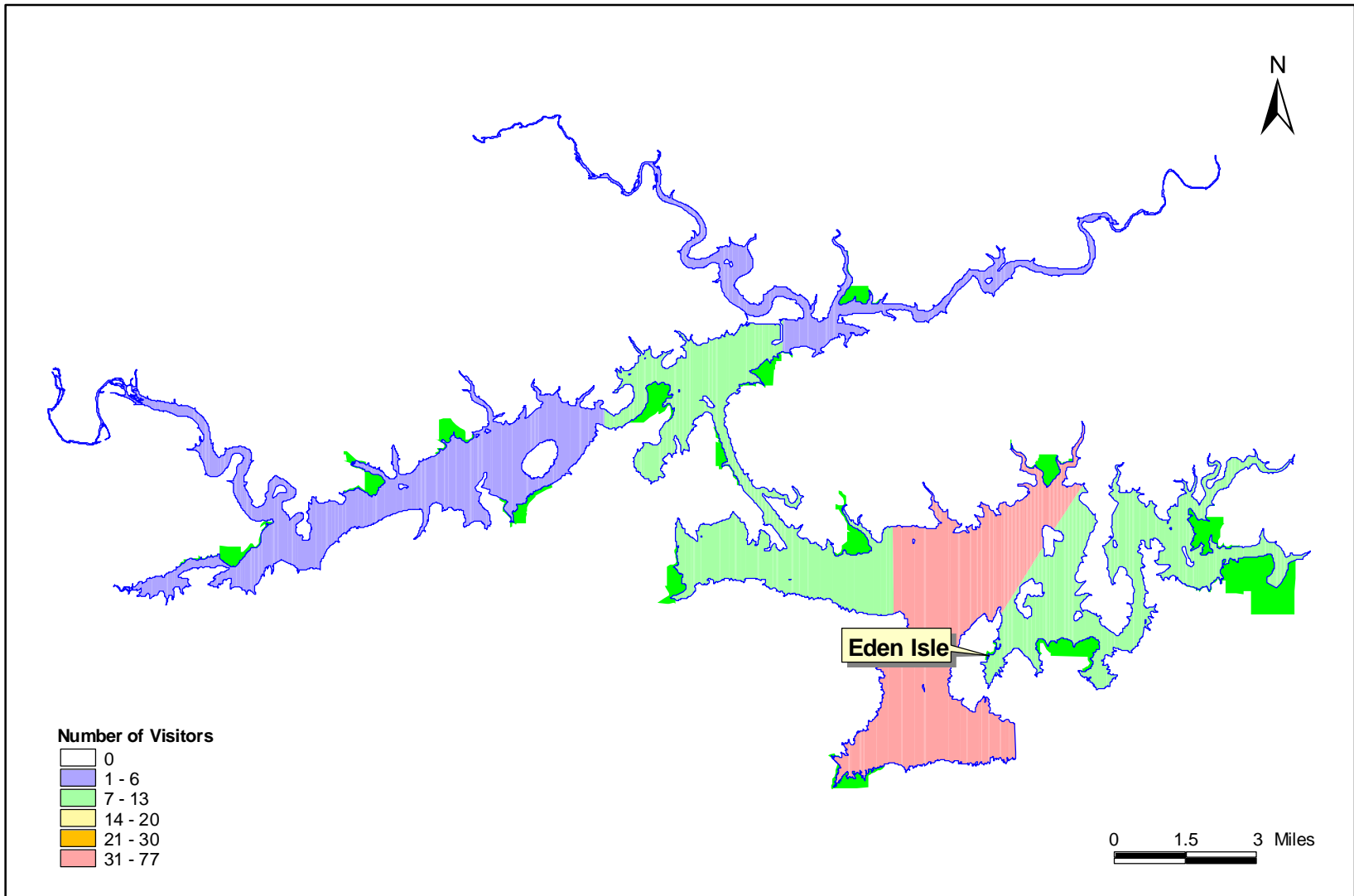


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Devil's Fork Park

Source: Survey Data, 2001.

Figure 5

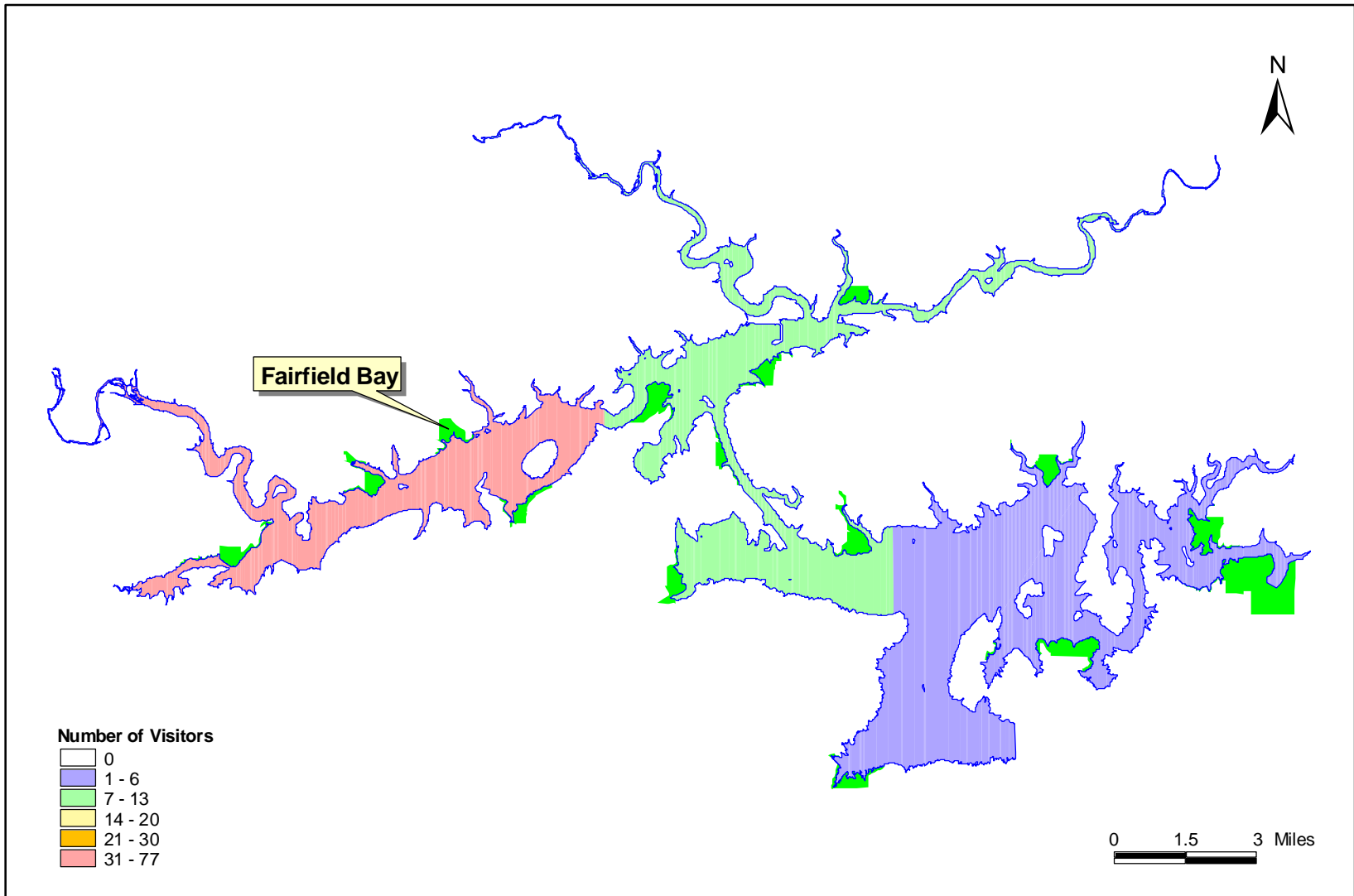


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Eden Isle Park

Source: Survey Data, 2001.

Figure 6

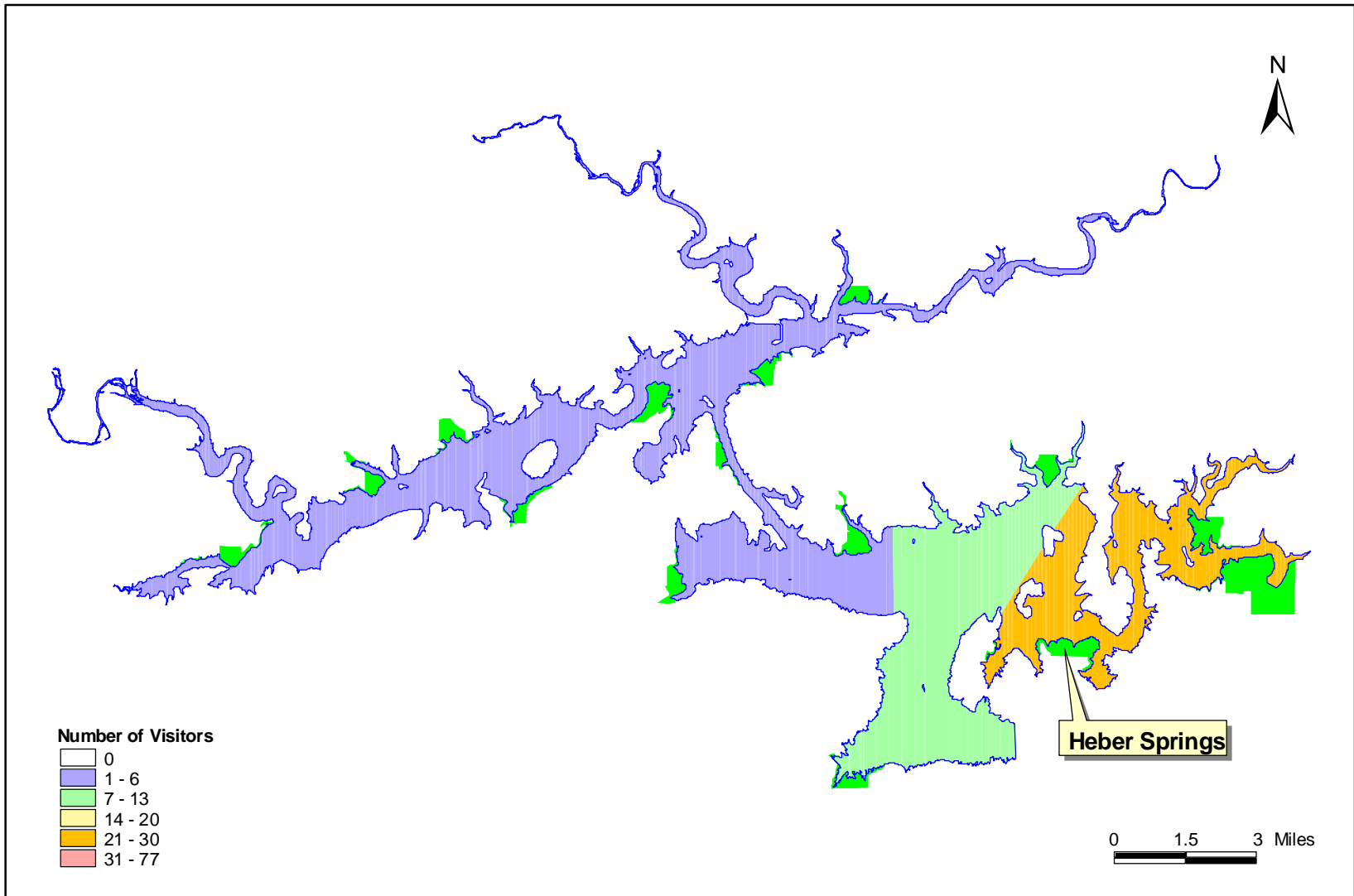


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Fairfield Bay Park

Source: Survey Data, 2001.

Figure 7

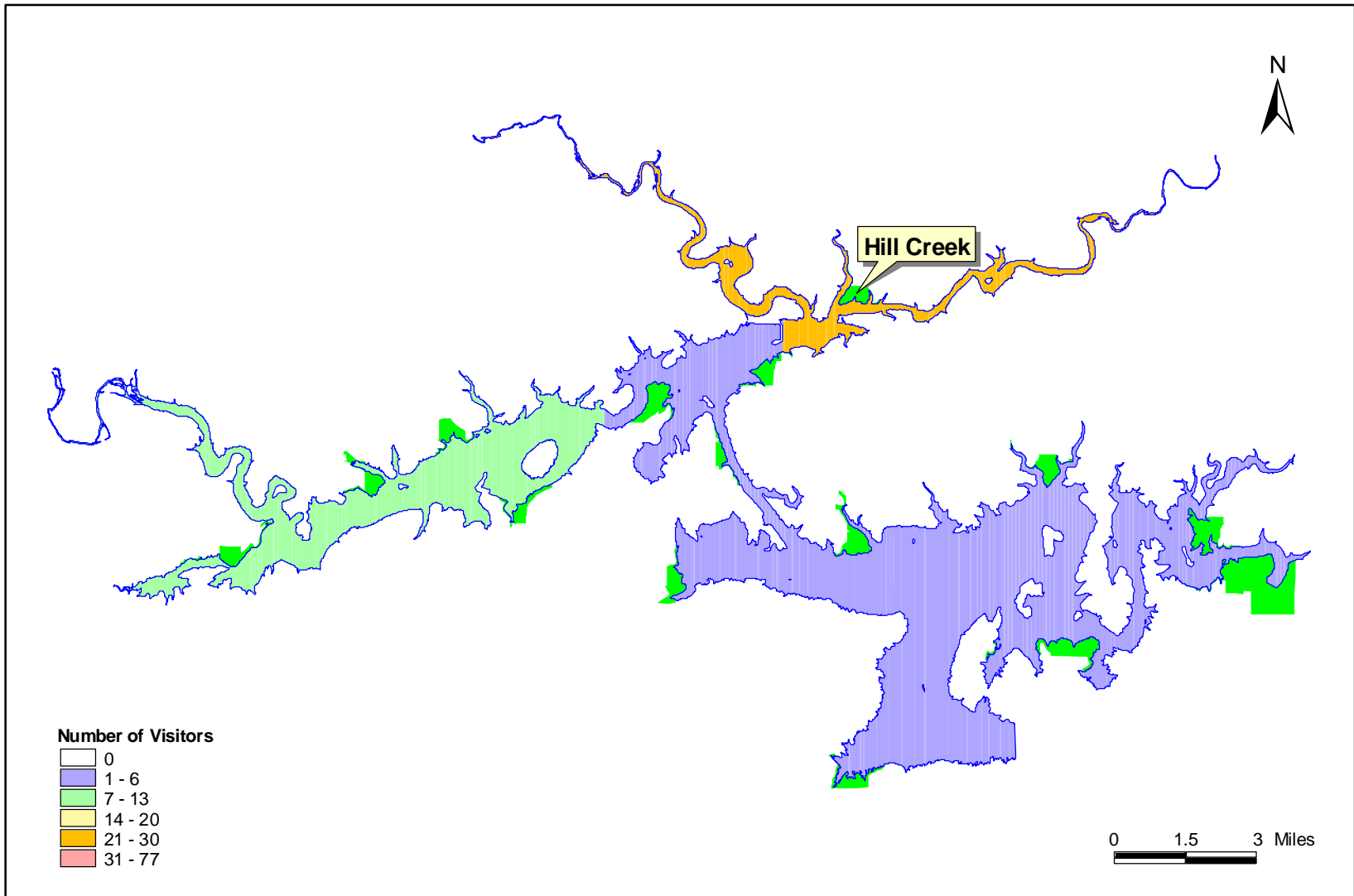


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Heber Springs Park

Source: Survey Data, 2001.

Figure 8

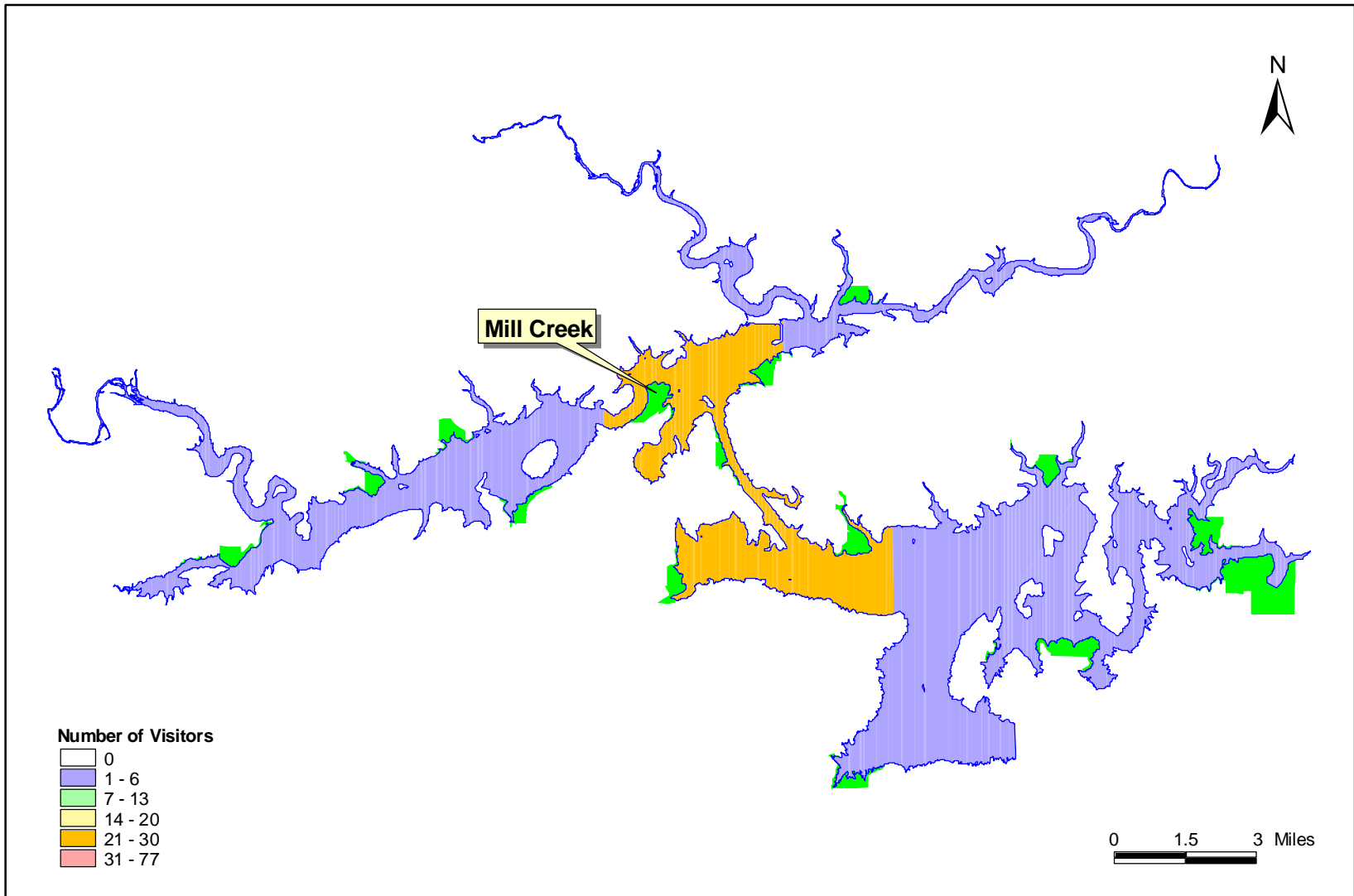


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Hill Creek Park

Source: Survey Data, 2001.

Figure 9

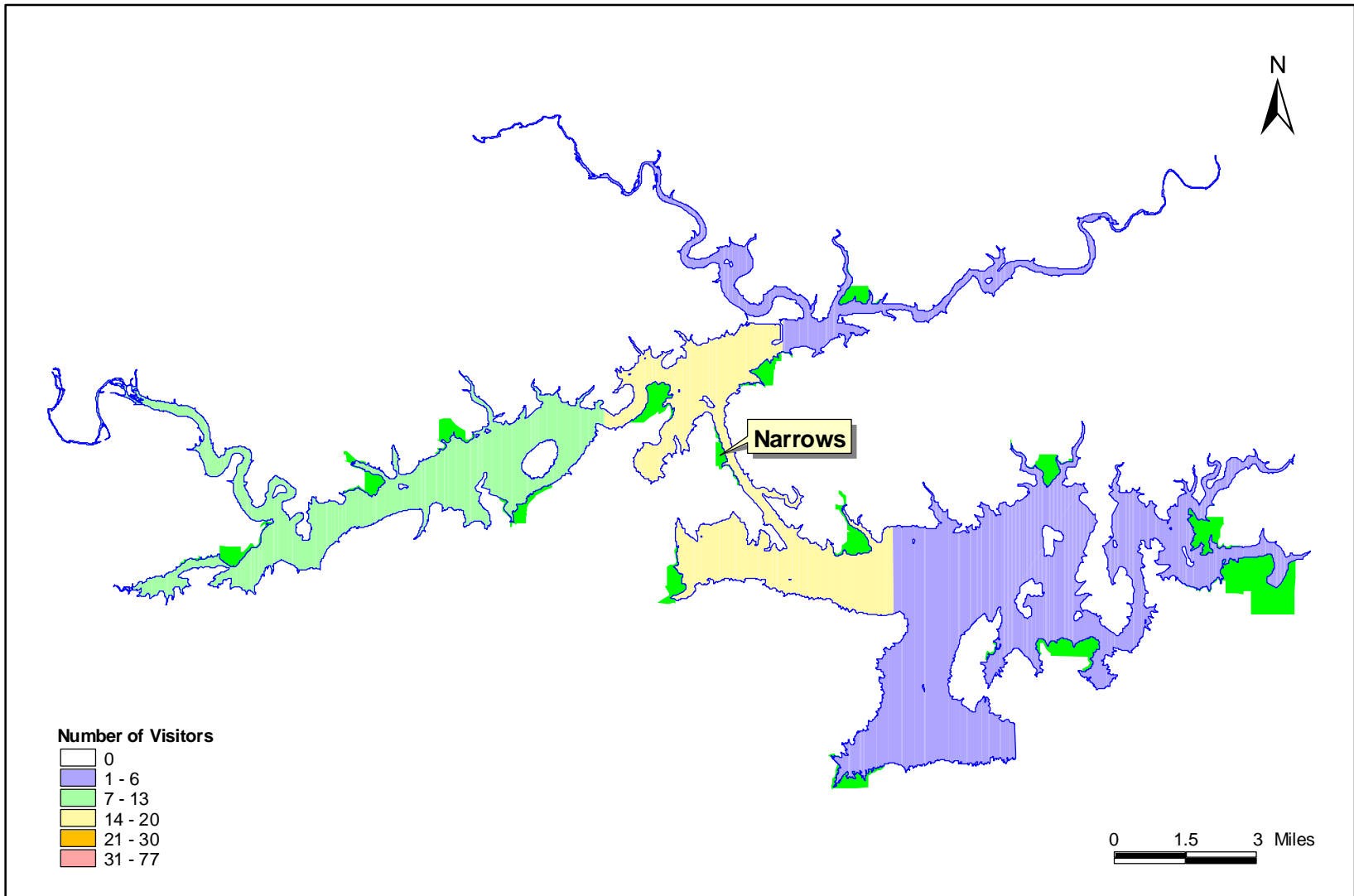


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Mill Creek Park

Source: Survey Data, 2001.

Figure 10

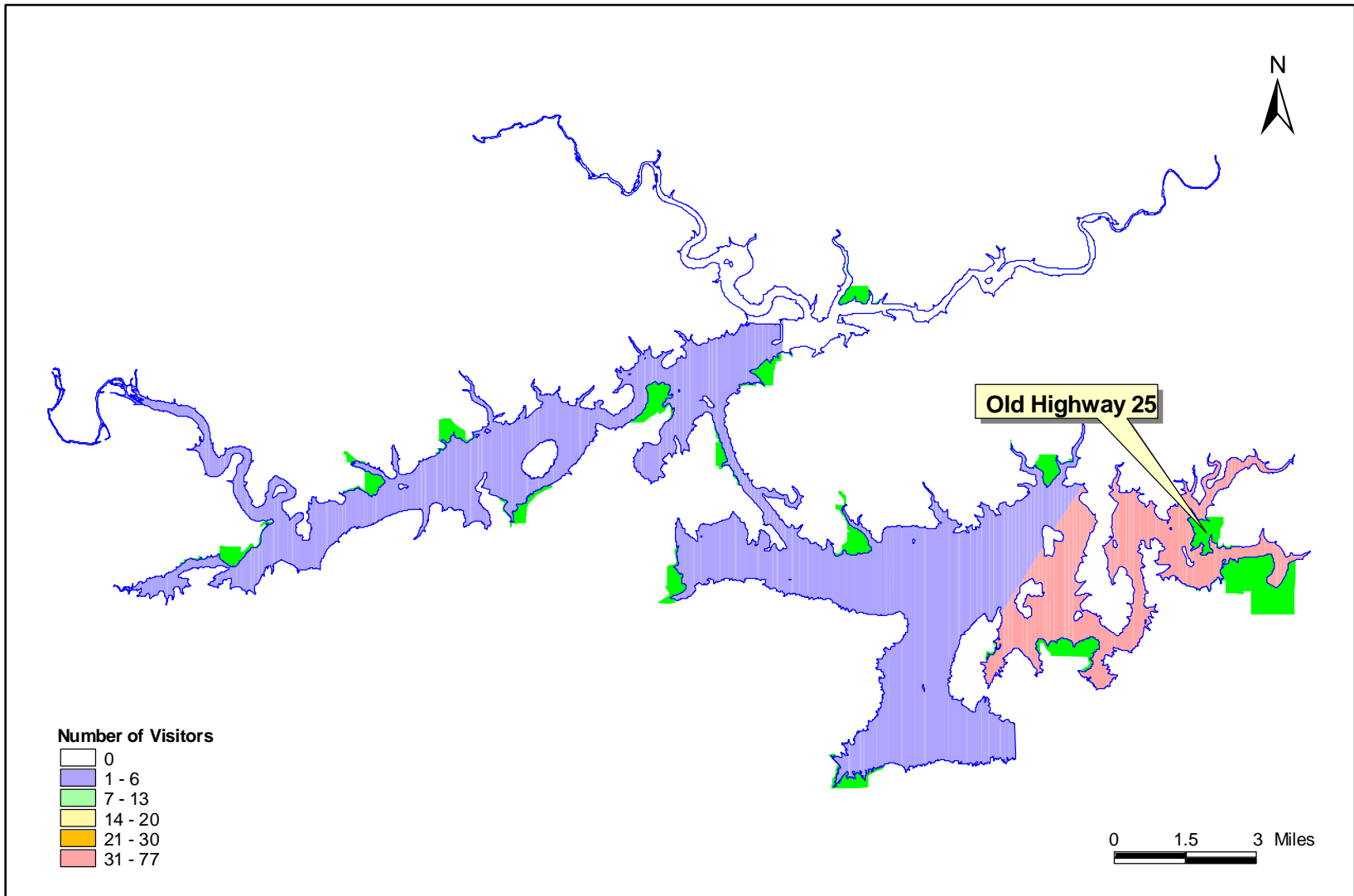


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Narrows Park

Source: Survey Data, 2001.

Figure 11

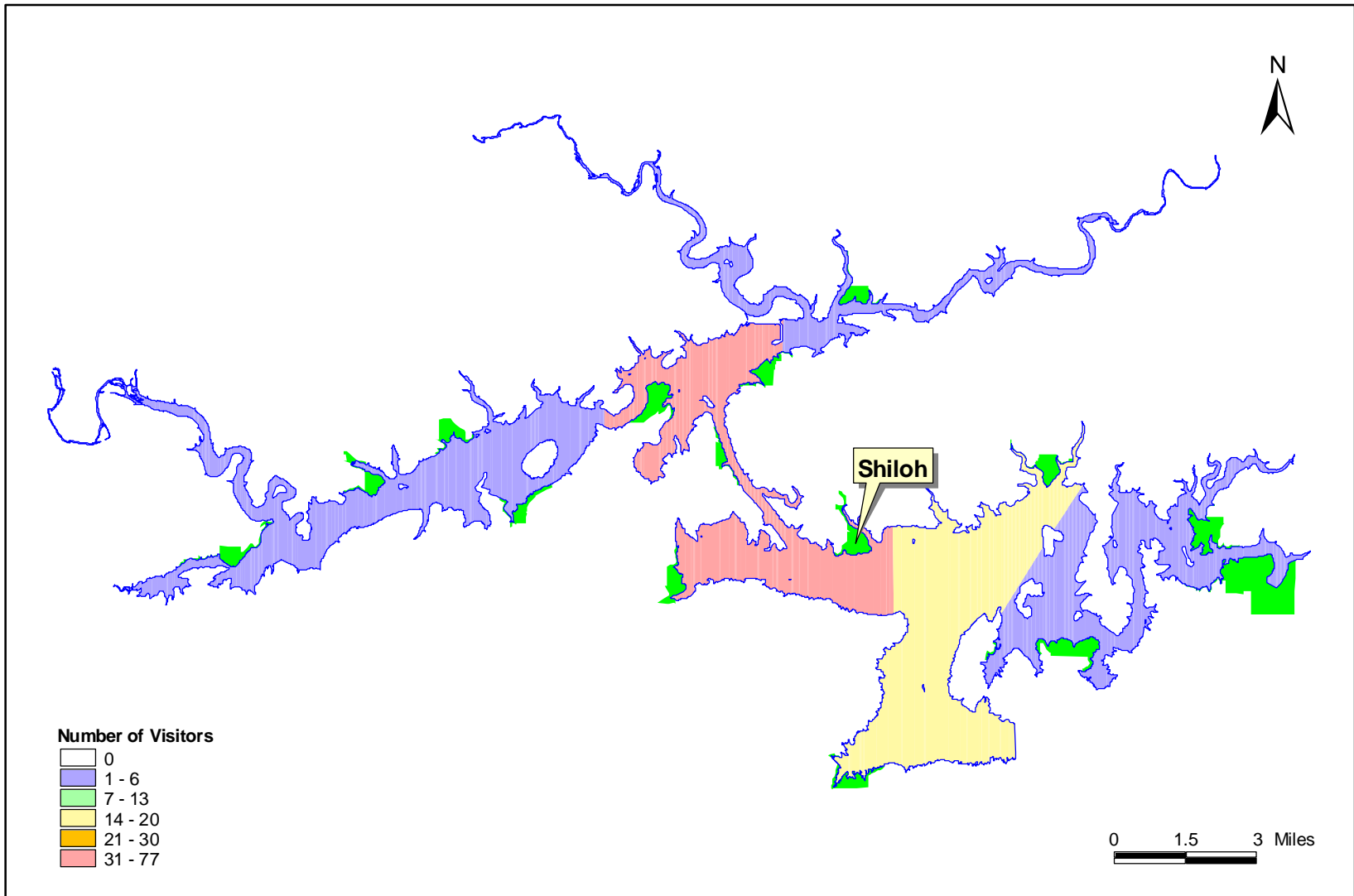


LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Old Highway 25 Park

Source: Survey Data, 2001.

Figure 12

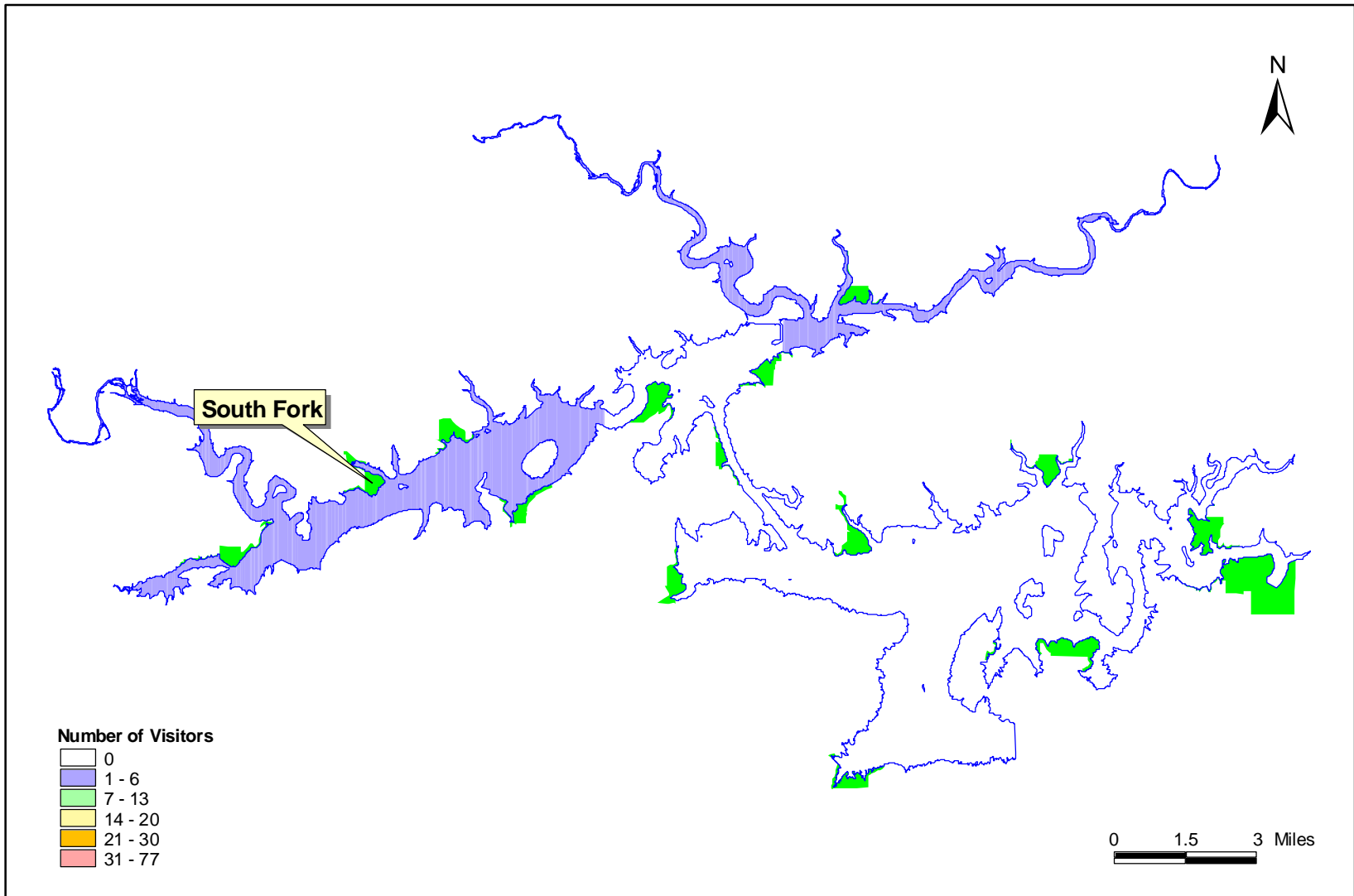


LEGEND
[Green Box] Recreational Park
[Blue Line] Greers Ferry Lake Shoreline

Lake Area Use from Shiloh Park

Source: Survey Data, 2001.

Figure 13

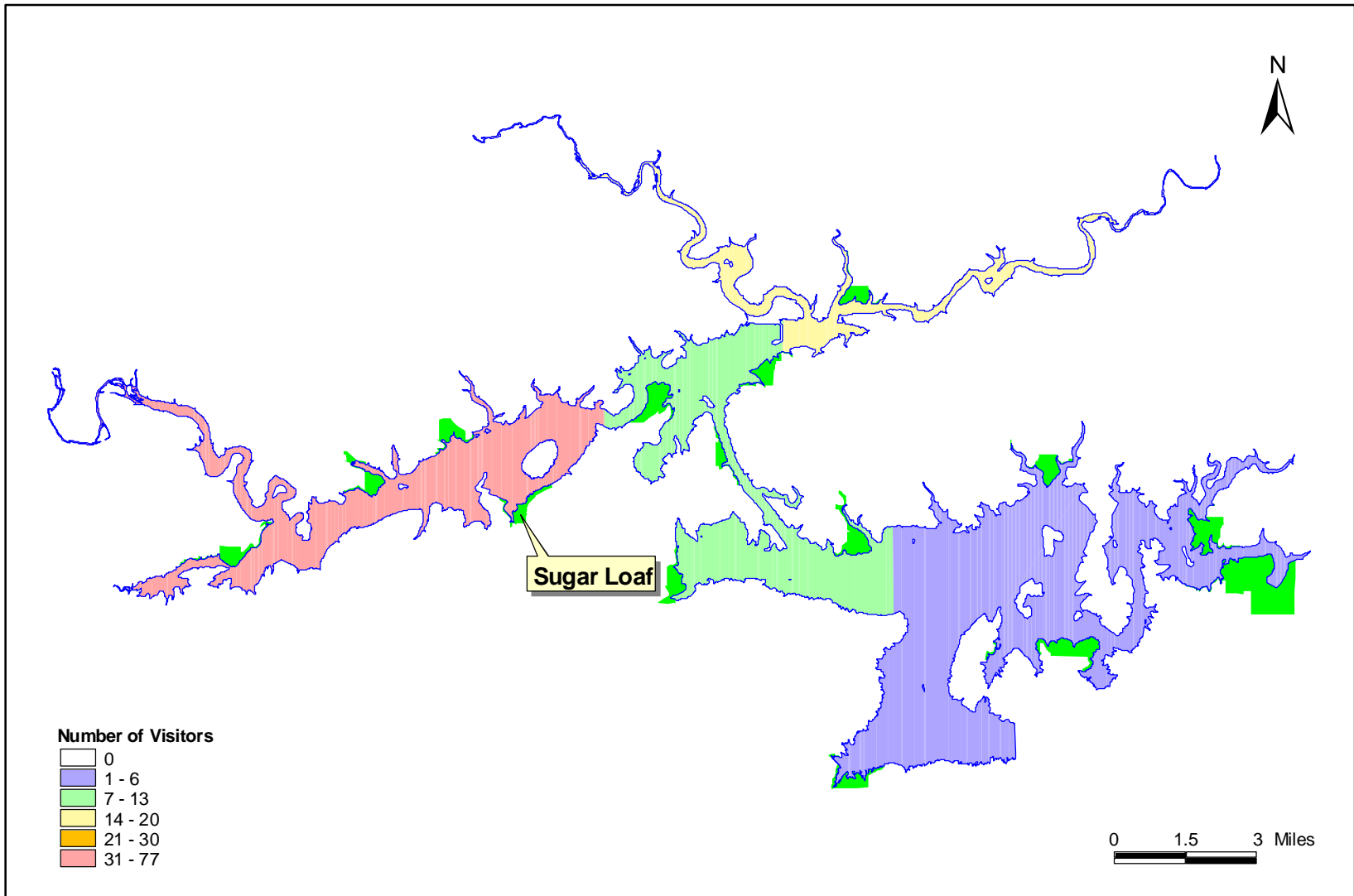


LEGEND
[Green Box] Recreational Park
[Blue Line] Greers Ferry Lake Shoreline

Lake Area Use from South Fork Park

Source: Survey Data, 2001.

Figure 14



LEGEND
Recreational Park
Greers Ferry Lake Shoreline

Lake Area Use from Sugar Loaf Park

Source: Survey Data, 2001.

Figure 15

Appendix E
Additional Comments

Additional Comments

Surveyed Boaters:

Lake Development, Opposed:

- Would not want excessive development - monitor sewage and septic systems.
- We don't want to see any more boat docks on the lake. We feel it will affect the view of the landscape and lakeshore property.
- No more boat docks.
- Keep the marinas as they are. Keep shoreline clean and natural. God has given a gift, do not let money destroy it. Carl Garner ran a great lake, keep it that way. If not, we'll look like Hot Springs, which is horrid.
- I wish that the Corp would keep the commercial activity, especially marinas, to as minimum as possible.
- The limitation on the number of private docks is good because it prevents unsightly structures on the lake. The natural shoreline is a big draw for my family.
- Do not allow more lakeshore development.

Lake Development, For:

- The lake needs more visitors and people.
- Should issue a few dock permits and if they do the docks should be expected to be adequately maintained.
- Need to open more shoreline and launch ramps.

Recreational Facilities:

- Would like to see the campgrounds reopened at Burnt Ridge with a concrete boat ramp.
- Would like to see more camping areas or more campsites.
- Just adding more campsites to the campgrounds here would improve everything.
- Trees at beginning of campsites need to be removed (small trees) as they inhibit drivers ability to park.
- Need vents in restrooms at campsite.
- Bathrooms not clean on Old Highway 25 campsite A. Had to clean up after someone else at campsite. Bathrooms were pretty bad.
- There MUST be public restrooms available 24/7/365. This is a very serious nasty problem. At one point in 2000, the MARINA facilities were even out of service.
- There aren't enough bathrooms.
- Need more bathrooms at marinas and boat docks.
- Put restrooms near boat trails and at parking areas on boat ramps.
- Need more showers and with hot water in more of them.
- Would like more water hook-ups at campsites.
- Need more electric and water hookups at campsites.
- More electrical outlets at Cove Creek campground.
- Need water at campsites.
- Please construct boat ramps for handicapped and elderly (walk-out ramps).
- More courtesy docks.
- All the parks should have a dock to tie your boat so they can get off and eat lunch.
- I wish there were more docks so that you can get out and tie up boats at swimming areas.
- Dock walkways need repair.
- Would like basketball hoops in playground areas and small soccer pitch.
- Need more pumpout facilities.
- Need more light to direct people to marina.

- Lack of public vehicle parking and none for boat trailers. Parking very inadequate at launching ramps.
- Have more facilities for overflow areas.

Management Issues:

- Not enough sand on swim areas. The Corps office at Heber has also been helpful and open when I have called the office.
- Need more security along campgrounds and on lake. Had cooler taken from truck and friend from campground while they were sleeping.
- Need more game wardens or park rangers. Hardly check on whether folks are wearing life jackets. I have seen drinking on lake, children without life jackets, jet skiers without life jackets.
- Enforce children's life jacket laws (too many don't wear them).
- More cops; officers need to be on the lake more often.
- Appreciate presence of Corps personnel on lake—there to help and benefit but not to harass folks. Hospitality of fellow boaters!
- At our private ramp we have problems with others using area and partying, leaving broken beer bottles and Corps won't help enforce others' usage of area. We called police. Police helped some.
- I am glad to see the game and fish commission patrol the lake to monitor watercraft and drivers.
- Eliminate weekend partying on boat docks—especially leftover trash and beer cans at Cove Creek.
- Houseboats could be polluting water with human waste while in slips.
- Problems with animal waste on slips.
- Homes with septic systems are too close to lake.
- Narrows should be no wake zone.
- Would like no wake zones in coves with docks.
- Boats do not obey "No Wake" zones.
- Cut out reservation system at campgrounds!
- People don't like reservation system.
- Campgrounds are poorly managed with respect to the way reservations are handled.
- Too many unleashed dogs in camping area. Dogs barking. Garbage isn't picked up often enough. More electrical hook-ups at campsites. Need more "floating walkways" like they have at Devil's Fork.
- The shorelines should be better maintained by the Corps and the property owners. The commercial marinas should not be allowed to expand at the present location.
- Stricter jet ski laws need to be enforced.
- People need to take the boater safety course, especially jet skis.
- All drivers should be told to know and obey all rules—especially on Sea-doods! Sea-doods hardly ever obey rules. Need sheriff patrols on Sea-doods all weekends from Memorial day thru Labor Day.
- Restrict jet skis to certain areas like Dam Site. Put an age restriction on jet skiers.
- Jet skis could be restricted to the middle of the lake and mufflers could be required of them and speed boats.
- Ban jet skis.
- Really need to watch the boats and jet skis around the swimming areas.
- Boaters ride too close to houses' swimming area.
- Need to care more and monitor the environment. Water testing.
- People launch boats where they shouldn't.
- More fish, more game.

- Stock more fish.
- Stock more bass, crappie.
- Need more fish.
- Outlaw trout lines. Need more stocking of fish and better spawning areas.
- Grass near swimming area should be mowed more frequently.

Specific Issues:

- Would like problems at Eden Isle Marina resolved with dock owners and management. Would like to see Corps enforce regulations instead of the Game and Fish Commission providing the enforcement.
- As a public-funded facility should not have to pay or buy permit to launch boat.
- The slip rental fee is almost outrageous, but not quite. The charging for electricity at Eden Isle Marina is NOT LEGAL, and a serious disruption to the tranquility of the lake experience. Water patrol had 2 boats parked in the water just outside of Eden Isle stopping every motorboat entering or leaving the marina.
- The gate staff at Narrows are extremely pleasant. Gas prices at the marinas are too high.
- Someone should investigate the management of Eden Isle Marina. They are not serving the public well as it refers to the sailing community. The lack of restrooms, the re-selling of electricity, and the lack of service facilities for sailboats is very negative for the lake.
- Would like to see a special marina for sailboats only.
- Should be some type of regulation as to slip fee charges. Maybe more competition between marinas.
- If you get property on lake, why can't we get to clear so we can see the lake. Some get to clear and others don't. It's not fair that all can't clear property.

Observations:

- Witnessed a guy jump off tree at a bluff and break both ankles.
- We've been on the boat slip waiting list for 3 years.
- The Corps of Engineers is doing a very good job.
- Should do more surveys like this to get more people's opinion.
- Rude game wardens on the lake.
- Rangers need to not harass the boaters and jet skiers with a gun.
- On a scale of 10 it's a 9. Gate staff is friendly and helpful.
- Not too many lakes where you can scuba dive and where you can see clean water.
- No more surveys!
- New dock at Sugar Loaf is way too small.
- Places for sailors to shower near/on Eden Isle. YEAR ROUND restroom facilities on Eden Isle Marina. The marina is closed October through April on weekends.
- Mr. Carl Gardner needs to stay retired and allow engineers to do their job.
- More free facilities.
- Love the freedom of the area! Narrows is the greatest campground! Two ladies at gate are awesome!! Grounds are kept clean and neat! Need dive shop!
- KEEP IT A DRY COUNTY!
- Fishing at docks would be acceptable if OK with marina owners.
- I have been coming here for 25 years, since I was 1 year old, and I will continue to come and bring my children as I have today.
- Gate staff very pleasant.
- Best lake in Arkansas!
- Drug traffic is bad in Fairfield Bay mobile homes that were rented out by Fairfield Bay homeowners.
- Corps needs to be more user-friendly.

- Corp has done excellent job. Are always helpful.
- Clean up sewer at Eden Isle. It stinks.
- Absolutely superior body of water—deserves all perfection possibly to be provided.

Adjacent Landowners:

Lake Development, Opposed:

- I own a house and additional property at the lake. Too much building and too many septic systems where they should not be are going to ruin the lake. It has reached the point to where I wouldn't even attempt to put my boat in the water from Memorial Day until after Labor Day.
- I would like to see it remain as it is.
- I will be using the lake more in the next few years so I would like to keep it unspoiled looking as much as possible without docks all over and the banks all mowed.
- Keep it uncommercialized. Keep it natural. Keep it like it is.
- I hope it never changes. If I had any problems, it would be towns 50-70 miles away taking water from the lake, enough is enough.
- I would like to see the lake stay natural but not go to extremes.

Lake Development, For:

- This lake is underused by both adjacent land owners and general public.
- The people pay the price for lake property. Let them enjoy it.
- I think developing around the lake itself would help the area - with proper guidelines.

Recreational Facilities:

- I would like to see a dumpster put at the end of Route 330 at Choctaw. I pick up approximately 2 bags of garbage every week.
- We owned a barge in past years, but no longer have it. I visit the lake 3 or 4 times weekly down on Old Trail Rd. on Eden Isle, but usually go to the pool to swim because we no longer have a boat. We live on the old road that leads directly into the lake. Usually the area around the lake there is nasty. I used to try to pick up trash because I was afraid my kids would get glass etc., in their feet, but it has become too busy with too much trash to handle. I wonder if there was a trash can would it stay cleaner?
- Electric, showers, restrooms - pavilions for family gatherings.
- I would like to see a walking or bike trail around the lake. I would like to see more restaurants/ lounges on the shoreline. I would like to see a real nice playground/park on the lake.

Jet Skis:

- Jet ski users should have their own section of the lake.
- Jet skis should be restricted to open waters.
- I would like to see more safe boating, especially jet skis and speed boats.

Private Docks:

- We are OLD people but do not like the idea of more docks and other changes. Our children and grandchildren will come here for years.
- We love it and do not need any more parks, boat docks or other commercial or camping areas.
- I am not opposed to a few more private docks as long as they are well maintained and in secluded coves. I think that in general a lot of docks detract from the beauty of the shoreline and add to pollution and litter.

- If lakefront owners want and get boat docks, let the Corps decide size and length of such and also make owners keep up their docks to your specifications.
- Private docks with stringent building and maintenance requirements and the Corps treat everyone according to how they act.
- I would like to see the Corps enforce some regulation concerning dock building and bank alteration on the Little Red River below the dam.
- We are thankful to be a part of a multi-family dock. It has made our trips to the lake more frequent and enjoyable.
- It would be nice if the boat dock which we share with our neighbor could be updated to accommodate two boats in the dry and we could mow to the shore line because we have small children playing in our yard.
- There are rumors of new dock permits being issued to land owners. While I enjoy the natural and uncluttered appearance of the shoreline, I feel it is unfair to prevent people that pay the higher price for lake frontage from building docks. (I do think there should be some maintenance regulations.)
- We need no more boat slips private docks
- Don't take a mandate that we don't want any more private boat docks. A property owner still has rights - and more than the COE's rights!!

Vegetation Clearing:

- Undergrowth should be able to be cut behind lake front homes on a fair basis. Right now some look like a golf course to the water line, some look like a jungle.
- There should be zoned portions of the lake that could be cleaned down to the shoreline. Then our lake could look as nice as some of the others in Arkansas.
- Your rules have gotten terrible. Over 35 years we've camped and walked every area of Greers: stayed in a condo; had business meetings; played golf. But if you can't clean up an area by the lake or going down to it, how can you watch your children? There are some *big* snakes down there. Or how can an older, retired person enjoy it? Lacey's Boat dock takes up whole Narrows, yet an individual can't have a boat dock. It tears a boat up taking it in and out. Very hard on age of person.
- I would like to see the overall shoreline look more like people had pride in their state. We don't need to reaffirm tourists' opinion that Arkansas is a backward, tacky place.
- I think landowner should have the rights to clear down to the lake not just a few landowners who already have. I would also like to know what this survey has cost the American taxpayer like me and my wife.
- Don't screw this lake up by allowing vegetation to be cut near the bank.

Fishing:

- We find the fishing is bad, so we don't go very often.
- In general very good. Would like to see speed zones so fisher people could fish on weekends without all the riled up water and boat noises.
- Release fry from hatchery at Mill Creek away from pipe. Hybrids and whites eat 95 percent when pipe is opened for stocking!!!
- We are trout fishermen and are vitally interested in minimum flow to promote water quality/quantity on the Little Red River.
- Fish and game screwed up with stripers and hybrid.

Campground Reservation System:

- I have been camping on Greers Ferry Lake for at least 30 years. There were prime sites sat empty all week for the two weeks I was there because they were reserved for a 2 day weekend. The reservations are losing money for the Lake.

- Stop reserving campsites. Some people work. This is a tax-payer lake.
- We are farmers; there is **no** way that we can reserve a place to camp. The reservation method works only for city people with waiting for weekend reservations. People will not take these in the week and have to. Prices have also gone up to make up for the empty spots that are reserved on weekends. All my family farm and we are just about to sell our campers because of the problem. If the reservation method was changed we would use the lake more.

Other Management Issues:

- I use the park as a walking area and in the past two years the park's maintenance has gone down.
- I would like to see less loud bikers in the park.
- More police on water. Control speeding.
- The Corps has adequate rules & regulations; it does **not**, however, enforce them as it should.
- I would like to see this area patrolled more.
- Would like to see private boaters deputized to control speeders and other infractions (such as littering).
- When I first moved into this area, the water was fine. Now if you go swimming you need a shower to clean the sediment out of hair and skin. There are septic tanks all around this lake. One would have to be naive to think secondary effluent water runs uphill from lateral lines. Every house has a septic tank. People dump portapotties in lake. At certain times of the evening the lake smells like urine. People spreading chicken litter at certain times of the year on pasture land to the point that we have to leave home to breathe. This too runs off into the lake.
- I do not believe marina owners should have a right to build docks across the backs of property owners property. Their rights should not be greater than property owners. My greatest peace and enjoyment on the lake is sitting on the back porch visiting friends and neighbors and drinking coffee or tea. This is why I worry that if Choctaw Marina keeps expanding its docks, my view will be gone.

Other Issues:

- Property owners owning property adjacent to public property should not get to use public lands as their own.
- Because as a resident who pays taxes to support the lake, I will not use any area that requires a boat launch fee or day use fee for swimming. Residents who live around the lake and pay their taxes should not be charged. If all areas of the lake are ever blocked off and there's nowhere to go without being charged I will drive to another county to a different lake. I may seem unreasonable but I assure you I'm not since the day use fees started, many people that I know have expressed the same views that I do. We believe that we pay enough in taxes to support the lake, and that when we go in to pay or taxes we should get a card for a year of unlimited day use of the lake. Camping should still be paid for.

Observations:

- We know all of the areas of the lake because we were raised in this valley and area. Just driving around and seeing how life is changing, and changes in population, our area has more houses and better houses, and more jobs. This is our homeland. We were born here and have lived here all of our lives, except for 2 years when I was in the Army Air Force. We have a neighbor, he stayed with us when he was growing up. He has a huge boat now. He talked me into one trip in the boat, over the part of the lake where we have land

- joining the lake. It sure looks different looking from the lake out to the land. We even found where the old school house was. As a kid I used to swim in the Little Red River. I think I learned to fear deep water, and love the land. The lake is beautiful. My father and his neighbors gave up their land for Greers Ferry Lake. This part is sad to us. He worried himself. He has died, and several others, but life goes on, and the lake seems like a good thing for the area, now.
- Turkey vultures roost there during winter and may be harmed by lack of fish.
 - Greers Ferry is a very pretty clean place for those that like the water. I just enjoy driving and looking at the water.
 - I think Tommy Parks is doing a good job. Leave it the way it is.
 - We have a very nice lake here for it to be referred to as the Dead Sea on the fishing circuit.
 - It's a shame this lake is ruled so much by people with a lot of money who can keep going to court to get their way. A lot of people have lost considerable money through the cancellation of permits this last year.
 - The Corps is doing a fine job.
 - Since I retired in January 2001, I started going to the lake during the week - less traffic on the water. One man in our area put in a request for a boat dock and it was approved but now I understand that he can't use it. Why? I put in a request several months ago to put in stone steps to the lake due to the steep incline and have not heard from you since.
 - Need to look into additional water treatment plants in Heber Springs area. Serious problem.
 - I have lived in Heber more than 20 years. I am too old to go to the lake often any more. I used to enjoy swimming. When I have out of town company, they enjoy swimming and fishing. I don't like to see the water get too low.
 - I would like to see the Corps become a better neighbor - less like IRS.
 - It has done a very good job of messing up this area.
 - Don't know why they send out surveys and have community meetings. Required by law I suspect, for the Corps of Engineers agenda always takes precedence regardless of ownership input.
 - Enlargement of marina at Choctaw should have been studied for impact.
 - People with private docks are arrogant and act as they own lake area around them. City cops won't allow you to use core property at the end of Lakeview Drive. Run swimmers and picnickers off.
 - Beautiful lake - keep it clean
 - Please keep the natural beauty of the shoreline!
 - Great lake.
 - We also have a home on Fairfield Bay, AR. 138 Dunn Hollow Drive. I realize that there are special-interest demands for the lake, I.e., water flow below the dam, power needs, fishing concerns, pollution-free concerns, boating needs, and others. The Corps has a tough job; overall, you grade an A.
 - I grew up around the lake, and it keeps getting better. The park employees are exceptional.
 - I don't cut trees and my yard is full. Every now and then you cut to allow other trees to grow, like saplings and dead ones. Thank you for sending this survey to me.
 - Own 1.5 lots on Red River. Don't have a building on them.
 - We plan on buying a boat soon and will start going to the lake.
 - I have not used the lake for fishing or camping since 1999 for health reasons.
 - We are Senior Citizens and don't own a boat or go to the recreation sites. Couldn't answer these questions. Thought you could send them to someone who could.

- We own 2 lots next to our son's property with no facilities to spend overnight so therefore we only go to clean up property.
- Regret that I am unable to complete this survey. We have only been to our lake house 2 or 3 times a year for past 3 years, and have not had our boat in the water for over 5 years.
- We also enjoy the Little Red River and the City of Heber Springs, because of it's rural atmosphere and easy living style.
- When watching jet skis, I marvel at so few accidents. We utilize the multiple campgrounds on average 3 to 5 days a month during summer, fall and spring, and occasionally winter. Campgrounds are all wonderful and the best are where there are zero boat docks.
- Tommy Parks and the personnel working at Corps are doing an outstanding job as stewards of this lake.
- We visit occasionally to Sugar Loaf Rec. Area; I buy the annual pass to get in for swimming and water aerobics. The water is almost always great and the water is as "pure" as any lake water in the USA. The COE with their contractor park attendants do a superior job of managing the parks. Sometimes, we travel in Oct. and up to 15 Nov. and some of the COE parks seem to close a little too early. The closing time is fine at Greers Ferry!
- Keep up the good work.

Marina Slip Renters:

Lake Development, Opposed:

- I hope the lake can continue its wonderful attraction and natural beauty to those who come to visit and those who don't own lake front property. All restrictions so far have been working beautifully. Keep it up. Please don't turn it into a residential lake. Keep it natural.
- Try to maintain how homes are allowed to be set back and leave the natural habitat.
- I realize that people have their own reasons for what they would like on the lake. As a fisherman, I would like to see things remain as they are with pristine shorelines and bays. But there needs to be a balance to keep us all happy. Good luck.
- Don't change anything
- Don't do anything to disturb the natural beauty
- Keep it like it is!
- This is the most beautiful lake I have found for the lifestyle we wish to pursue in our retirement. The natural attributes of Greers Ferry Lake are causing it to grow in people population more rapidly than some people like. However, a plan to control and direct growth is imperative. I strongly encourage the Corps to pursue their stated plans; it is imperative for the future of this area.
- The last thing I would like to see is the lake become much like Lake Hamilton (over developed). I realize there has to be a balance in the utilization of the lake by various constituencies.

Private Docks:

- Do not desire more private docks. They detract from lake. Some lakeside lots are clearing to water edge.
- I do not want to see Greers Ferry Lake look like the shores of Lake Hamilton. I do not (strongly) want any more boat docks (permits issued) to commercialize the lake.
- Restrict over expansion of boat docks. Do not allow any more docks.
- Love the lake. Don't spoil it with more owner boat docks.

- The shoreline of Greers Ferry should be kept in as natural a state as possible. That means controlling the number of private docks and the shoreline as concerns trees and brush. Don't let it turn into a dock at every lot as is the case on many lakes in Wisconsin and Minnesota.
- There seems to be a problem with docks on the lake. I feel docks in coves and out of the way places are okay. However, I don't think docks all around the lake would be good. That takes away the beauty of the lake. I would rather see a homeowner clean/clear around the shoreline than have a dock in some areas.
- No additional boat dock areas should be permitted except those in the original plan.
- Eliminate all private docks and allow only limited public docks that are carefully controlled for maintenance, sewage facilities, appearance, and management.
- Private docks should not be allowed on the large open areas of the lake; but in the smaller coves, landowners with 300 or more feet on the lake should be allowed private docks by permit only, subject to Corps of Engineers approval and inspection. Community docks (3-5 slips) for those with less land.
- I strongly believe that property owners (lakefront) should be allowed to have their personal dock. If I owned such a lot, I surely would want one. I do not however think scalping the shoreline is acceptable, just a lane to get to their dock.
- Would like dock permits for private landowners to be more easily accessible.

Vegetation Clearing:

- If they cleared trees they must sod area.
- Reasonable limb trimming at trees for a view should be allowed. Cabins and/or houses are bought on the lake front for the lake view.
- Would make the whole lake better to clear brush and small trees. I feel very strongly that property owners should be able to keep a clean mowed place and allowed to clear the unsightly underbrush for a more beautiful place to enjoy. I spent hundreds of dollars now they want it to grow up in briars and old vines.
- We need to: Keep the lake clean and unpublicized. Keep the shoreline attractive by having a design and maintenance standard for boat docks and clearing.
- Underbrush could be removed in the interest of fire safety and rodent control.
- It is a beautiful lake which could be enjoyed to a greater extent by present users and could be utilized by more people if fewer restrictions were placed on lakefront properties.
- I am in excavation, and have worked a lot around the lake and feel that people paying \$50-100 thousand for a lot should be able to hand clear underbrush or very small trees. I don't see serious problems with erosion, as long as soil is not disturbed.
- I would prefer to see more small isolated community docks - less of the marinas such as the Narrows getting so big. My strongest desire is to be able to clean - pick up my shoreline - not clear - and even new plantings. I don't feel I can fully enjoy my land because of briars/poison ivy/downed timber on my shoreline.

Recreational Facilities:

- Would like a little more private enterprises on lake - restaurants, etc.
- A+ marina's bathrooms. A+ marinas with showers.
- Need more restaurants.
- Get docks up to standards.
- I wish the Sugar Loaf campgrounds would be open until December and open earlier in the year.
- There are no decent commercial establishments on the lake anywhere.
- I am surprised that the state of Mississippi, i.e., Sardis area, has far superior campsites. Check them out. Keep trying.

- Clear up confusion about pump out areas. Fix the ones that are broken.

Jet Skis:

- Need for more patrol on the lake during summer months and holidays. I am a guide on the lake (fishing) and I'm on the water 250+ days a year. I consistently see watercraft at night with no lights running and skiing after dark and lots of jet skis with no lights after dark at high rates of speed. Had several close calls to have accidents because of this. Somehow there's got to be more patrol or more severe penalties. Also with the increased rate of jet skis, hoping someday there would be designated places. Ninety percent of drivers of these are a real nuisance, get so close and going so fast.
- I believe jetboats and any inboard should have a muffler. Too noisy.
- The people that operate PWCs have no respect for other people on the lake.
- Control the jet boat activity to certain areas only.
- Find some way to control the litter and slow down the boats and jet skis as there will be more and faster as the years go by. Maybe set aside an area just for jet skis.
- I can't understand why jetskiers don't ride where other boaters aren't. They make waves that rock the boat too much. Why do they have to get so close to other boats? All they have to do is slow down.
- Get an area just for jet skiers. Discard old docks. Encourage older marinas to upgrade.
- I know everyone has a right to enjoy the water but the only problem I see is jet skis. Too many young kids not obeying or knowing how to obey the rules. Very annoying to a 20 year boater like me. I wish every boater (myself included) was made by law to take a safety course, driving test for water, and have to carry a completed, passed license.

Boater Safety and Behavior:

- Please have more rules enforced by boaters. More patrol and law enforcement on water to see that rules are obeyed. Ramps installed at boat launches.
- The lake is a precious resource that may be tarnished if use of the lake by specific types of boaters is not controlled and monitored.
- The no wake area at Heber Springs marina needs to be expanded.
- Power boats and jet skis are continuing to cause damage to the dock and to boats.
- I think the no wake zone should be enforced more. I have noticed that a lot of the boaters don't pay any mind to them.
- I believe alcoholic beverages should be monitored more closely.
- Much of the lake's demise in the past few years has been caused by irreverant behavior and a lack of appreciation of the good qualities of the lake.

Fisheries:

- Would like to see improved fisheries management.
- Should have a slot size limit on large mouth bass.
- More about fishing conditions in newspaper state wide.
- I have fished and boated on Greers Ferry since 1973. First few years fishing was great. During the late 70's early 80's, the "Dead Sea" was what we called it. But with stocking of hybrid and smallmouth and walleye, it has recovered nicely.
- I know that this lake was formed for flood control. In the spring do you need to lower the lake so fast? Young fish need submerged brush for shelter caused by high lake levels.

Other Management Issues:

- I strongly disagree with the way the Sandy Beach area is being commercialized. I think it was wrong to charge for the Heber Springs area during fireworks. This is the reason my

- family decided not to attend. Shame on you. I pay \$875 per year and I should not have to pay \$2.00. Thank you.
- Eden Isle sewer stinks where it empties raw sewage into lake at times.

Other Issues:

- The Narrows is too congested; restrict water skiing in the Narrows.
- Laceys Marina has become a danger and eyesore in the Narrows.
- Would like the marina at Cove Creek completed. Have to keep my boat at Sugar Loaf Marina (which is 12 miles away)
- Re: South Fork Recreation Area. The campground was closed due to year round vagrants and "permanent" campers. Although the boat ramp is still used (and it is a wonderful boat ramp) this is still a problem area and it is the only ramp for miles. Please clean it up and re-open the campground with regular sheriff patrols and charge for camping. This area is being vandalized at this time. We worry about leaving our truck & boat trailer parked there when we're out in the boat and we always try to get back before dark. Even so, many "skanky looking" people continue to use the boat ramp for a swimming area. They won't move (chairs, coolers, etc.) to let boats on and off the ramp (to load and unload). Please clean it up. Make campers register name address and pay to camp there. It is the only campground/boat ramp between Choctaw and Fairfield Bay (and it is miles by car to either one of them). This campground boat ramp is needed. Please open it back up. Clean it up. Allow 3 to 5 day camping only with camping fee. Patrol the South Fork area regularly by Van Buren County Sheriff's Office.

Observations:

- The lake that is now was much better before. Clean water.
- Thank you to the Corps of Engineers for maintaining this wonderful lake and surrounding area.
- A great place to be!
- Most beautiful lake in USA. Let's keep it that way.
- We selected the lake area for retirement and are happy with our decision.
- I love it
- I like the people that visit the lake. I think that it is the best lake in the state.
- Love it
- My family, friends, and I enjoy spending our weekends here. It is so relaxing after working all week.
- We appreciate the Corps keeping the lake clean and making it a safe place for families to enjoy watersports.
- I think the lake is perfect.
- Visitors center is outstanding. Fish hatchery is very nice.
- Thank you for a great job in creating and maintaining a jewel of a lake!
- I am concerned about the water company and what they are doing.
- Keep up the good work.
- Proper boat trailer parking laws should be strongly enforced at marinas. Particularly the one at Fairfield Bay.
- We had a pontoon boat for 8 years and used it so seldom (only one day in 2000, three days in 1999) that we sold it last year. We do not plan to use the lake again.
- Bureaucrats, both state and federal, should keep their hands off the lake. The current joke is, if anyone will read the information, keep Greers Ferry Lake a fishing lake and not as you are attempting to do with this form, just a recreation lake.
- All in all things are great. That's why we go 170 miles to get to heaven. We have a place at Swinging Bridge. Great neighbors. Clean water, open water, cool water.

- I think the Corps made a mistake in building more commercial marinas
- Great place
- My family and I love this lake.
- We hope they don't supply anymore water companies from it
- We also appreciate having such a nice lake and being able to use it. As a whole, I think everyone does a great job with the lake.
- The one thing that I don't enjoy on Greers Ferry Lake is the tourist, but without them a lot of folks couldn't make a living. So I guess we just exchange. I will get my lake back after Labor Day.
- Enjoy the people in Arkansas, interesting and intelligent people. The cell phone towers and some water towers ruin the effect of the Natural State.
- We spend over half our time at our home in Bee Branch but are in Benton when my husband has work to do. Our home in Bee Branch is not on the lake but on a bluff with a view. We love the area and the lake and hope that if there are changes in the future, they are positive and not detrimental to the area.
- There is an obvious paradox between development of facilities with increased revenue - homes, etc. versus discouraging development and the financial consequences. Who gets to use the lake?
- We've enjoyed coming to Greers Ferry for many years. The beautiful clear water and lush scenery surpasses Pickwick or any other lake I have visited in Tennessee.
- Great place. Beautiful.
- Concern that the average water temperature has risen over the years. Overall, I think the lake is managed properly along with the marinas/recreation areas.

To: Sam Pett

This attached letter is in response to the survey sent around to the local homeowners/landowners within the areas surrounding the Greers Ferry Lake area.

I personally have lived in this area for all of my life. It is one of the positive things we have to do in our rather small area. We are very proud of the scenery and the freedom to take advantage of this any time we get the opportunity to.

We have a VERY beautiful lake and surrounding area and can usually find a place to 'get away from it all.'

But there have been some very concerning things going on in the last few years. And I would personally like to voice these concerns that I hear from people in our area each and every day and while most don't have time or just won't take time to "fuss on paper", I feel with this survey, it may be an opportunity to have these concerns heard.

First of all I would like to state that we understand that there are very high expenses in maintaining our beautiful lake area. I know that probably most of these new concerns are valid in someone's mind that they will keep people out of trouble and cut costs at the same time and try to make a fair system for camping.

We are a small town with mostly lower/middle class to middle class income people and it's not very often we can take our families to something that is reasonable priced close to home. We work very hard to make the living that we do in our small area. Wages around here are kept fairly low so that we can keep the industries that we do have and them be able to compete with other larger towns and we do not have any unions to take care of us, we can take care of ourselves.

Part of this 'taking care' of ourselves is the state of mind and enjoying our time with our families whenever we can get the opportunity to do so. So many people get so wrapped up with the making of the "big bucks", that they miss out on the family values that we are seeing decline in this country. We in this area, appreciate our families and cherish the time that we do get to spend with them.

Part of this time, is spent boating and camping on our beautiful Greers Ferry Lake.

We have recently had so much trouble being able to do so. The reserving of campsites is great for people who have the money and they can just rent the spots and if they decide not to come, oh well, they don't care if they loose the money or not, but in the mean time, we are trying to plan something with our families and cannot reserve spots because the upper class of people have already reserved these areas and of course only the prime spots too. So therefore, if we are lucky enough to get a site, most of the time, we are stuck with no electrical sites and not even within site of the lake. It would be so if in some way someone could let the local people have a little more of a chance getting these sites. Most

of the time we cannot plan ahead like some people do, because we only find out from one week to the next, what our work schedules are, and we cannot afford to reserve and pay for the sites and then lose them because we cannot make it because we are not always able to take off work or work over time for our families and our community.

Big campers pull into the park and most of the time you don't even see anyone for days. don't get me wrong about the tourists that visit our area. I perfectly understand that we are living in a "tourist town", yet, we are the ones that pay taxes form our very hard working middle class jobs to pay the taxes that keeps this area so beautiful. Wouldn't it be nice if only every other site in every park was reservable and the others were first come -first serve? Not just some here and some there reservable and others to wait and see. Can't someone find a way for people that pay the taxes in the area, to be able to enjoy our area lake?

Second, it would be nice if there could be some more electrical sites added and more camping areas. We try to visit several areas of our lake, and we haven't yet seen any additional construction going on to really speak of in several years now. More facilities would be a real help too! Where is all of the money going that we pay in takes and camping/boating/swimming fees? In someone's pocket? We don't know but what it does.

Apparently it is being spent on the barricades that have been placed in the last couple of years at each of the entrances to site areas. I do understand that possibly there may be some safety concerns with this decision, yet we feel that you are not seeing the local people's issue that yes, we want a safe area, yet even if it is safe and we cannot reach these areas, why keep them so safe?

In this area, we usually have pretty mild winters with many weekends nice enough that if we were ALLOWED to, we would love to camp, picnic, or just spend the afternoon out with our families going for a walk or drive through the parks, yet we cannot drive down to the places that we would like to get to so that we would be able to. We are forced to stay out of these areas and so what if there is no electric, and it's late fall , winter or early spring, if there is a weekend that we have very nice weather (which happens all the time), we cannot even enjoy our lake that we are the ones that pay the taxes all year long on not just during the "peak seasons"! Instead, these areas are barricaded so that we cannot. and some people are handicapped just enough that they cannot walk under and around these barricades to have any access to the lake.

Is it only because the parks doesn't have high dollar camping rigs pulling in and spending time there or is it because it is not a reservable time that rich people can reserve sites and then not show up if they decide not to and you cannot make any money like that? That's a bunch of bull!!! Or is it???

We have to pay taxes all through the year out of our paychecks, yet we can only enjoy our lake when someone says we can? Something is not quite fair here, don't you think so? We in the community sure think so!

And what is this about only a certain number of vehicles, people and tents being allowed per site? Does that one seem fair? I don't think so and neither does many I have spoken with.!

I can see the point somewhat, that the more people, the more noisy and the more possibilities that trouble could erupt, but "HELLO" some of us are not noisy and troublemakers and we have large families and personally, mine is rather big, and the kids which some are young teenagers, like having their own tents. Yet now, we are limited to how many? What bull!!!

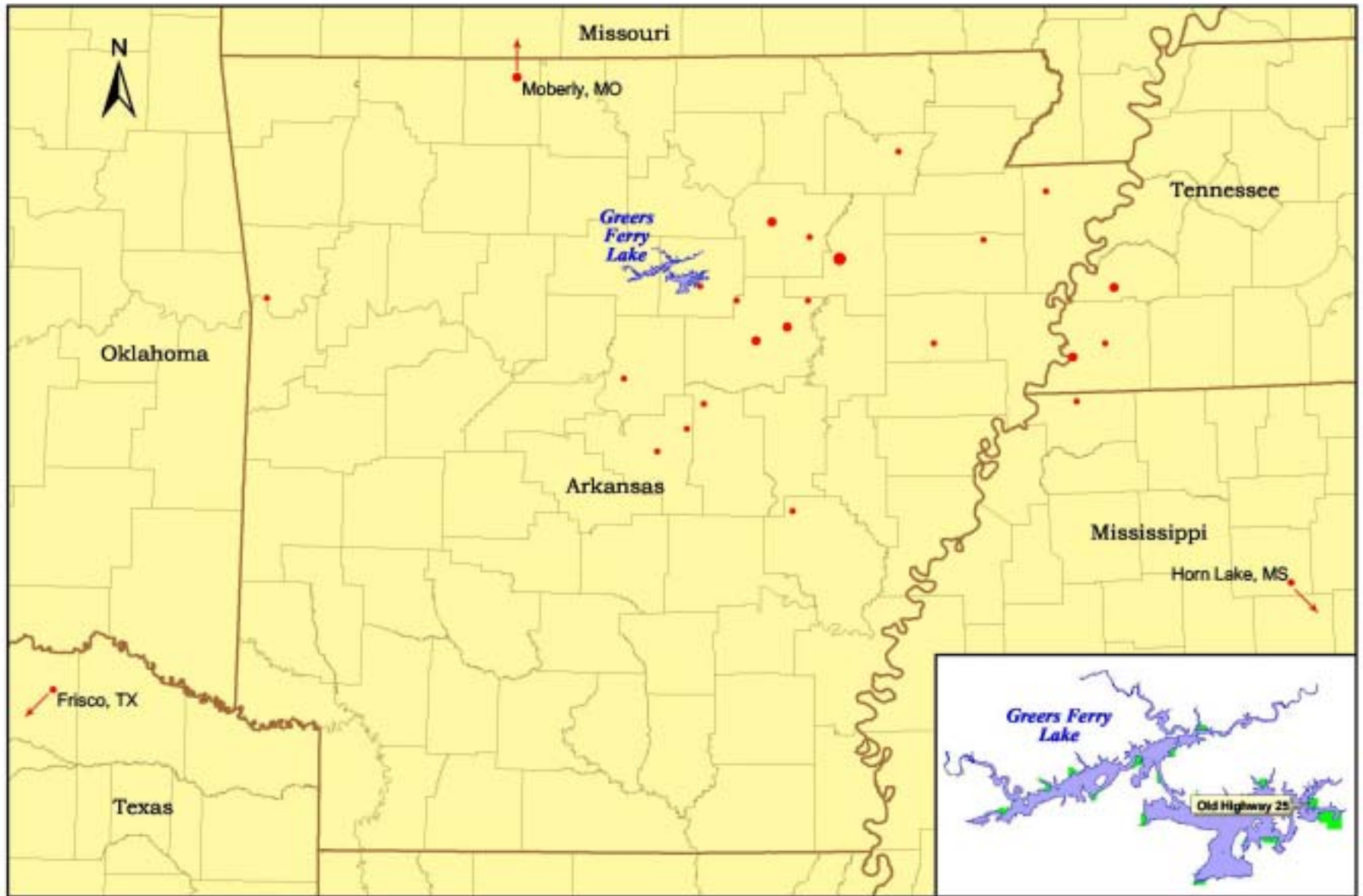
And what is up with the trash bins being moved out of the areas and only located at the check in area. What is wrong with keeping at least one trash receptacle at the entrance to each camping area. So that we will be more apt to throw away trash before night time so that it wouldn't encourage animals to come into the camp areas. But "NO". We have to haul it all the way to the gate where we feel like they are inspecting just how much we throw away. How stupid is that rule!

Please reconsider the possibilities of what is not necessarily easy conclusions to these problems, but what will improve our lake areas and help the people that pay the taxes to be able to benefit from our beautiful lake area also.

Sincerely,

Concerned taxpayer/camper "wanna be"

Appendix F
Visitor Origin Maps



LEGEND

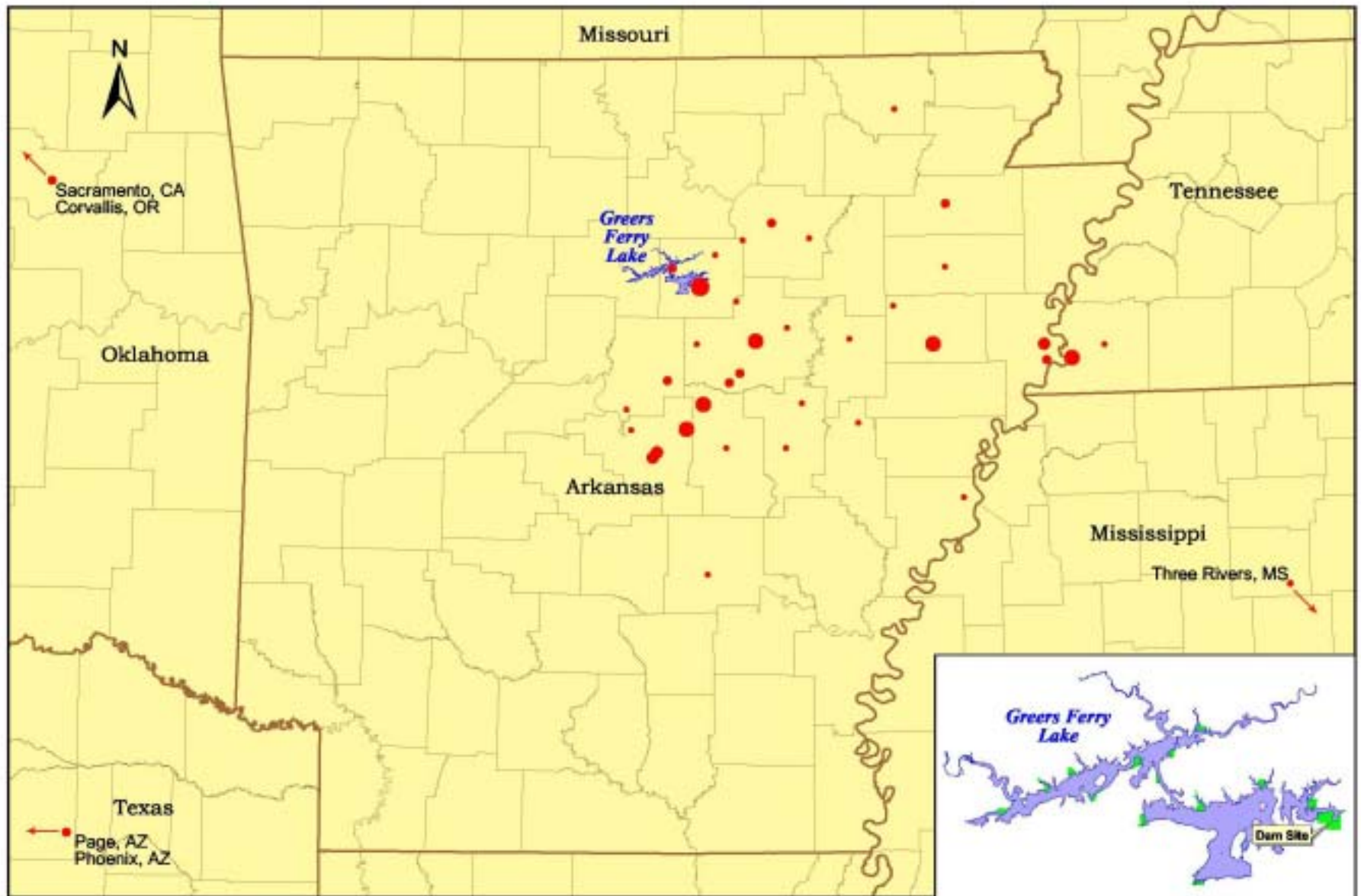
- State Boundary
- County Boundary

Number of Visitors

- 1
- 2
- 3
- 4 - 8
- 9 - 13

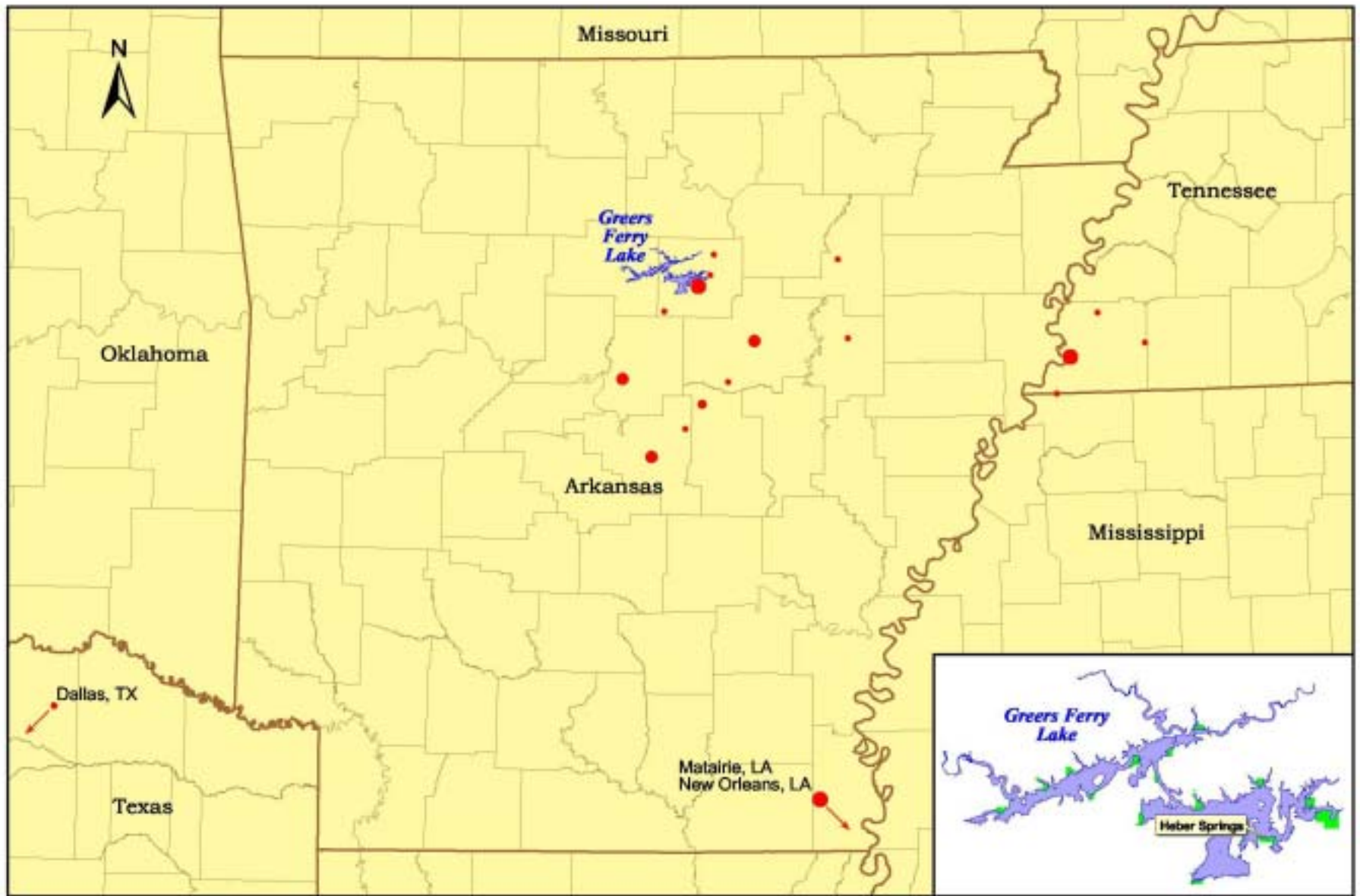
Origin of Visitors to Old Highway 25 Park

Source: Survey Data, 2001.





Origin of Visitors to Dam Site Park






Source: Survey Data, 2001.



LEGEND

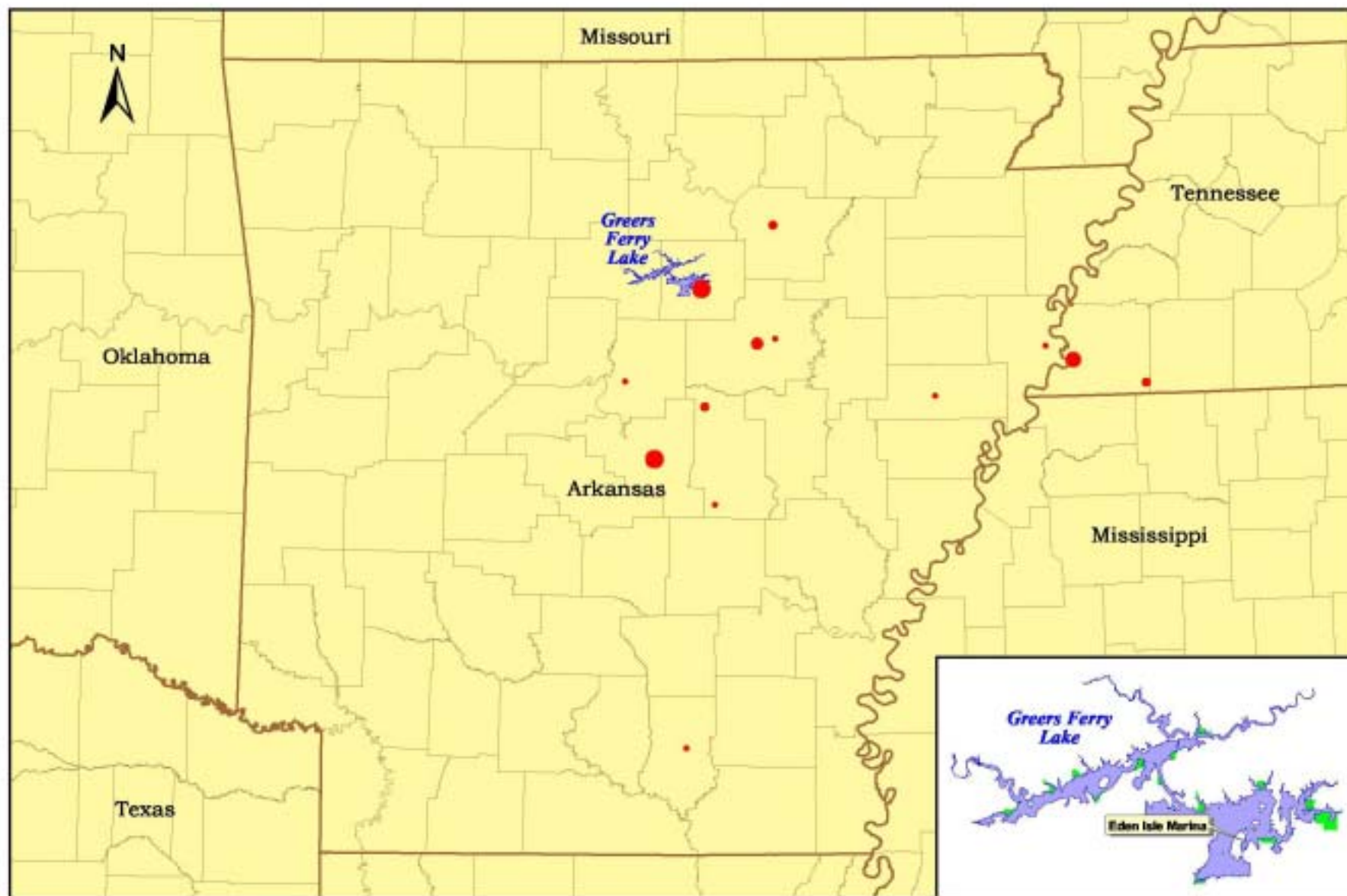
-  State Boundary
-  County Boundary

Number of Visitors

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-  2
-  3
-  4 - 8
-  9 - 13

Source: Survey Data, 2001.

Origin of Visitors to Heber Springs Park



LEGEND

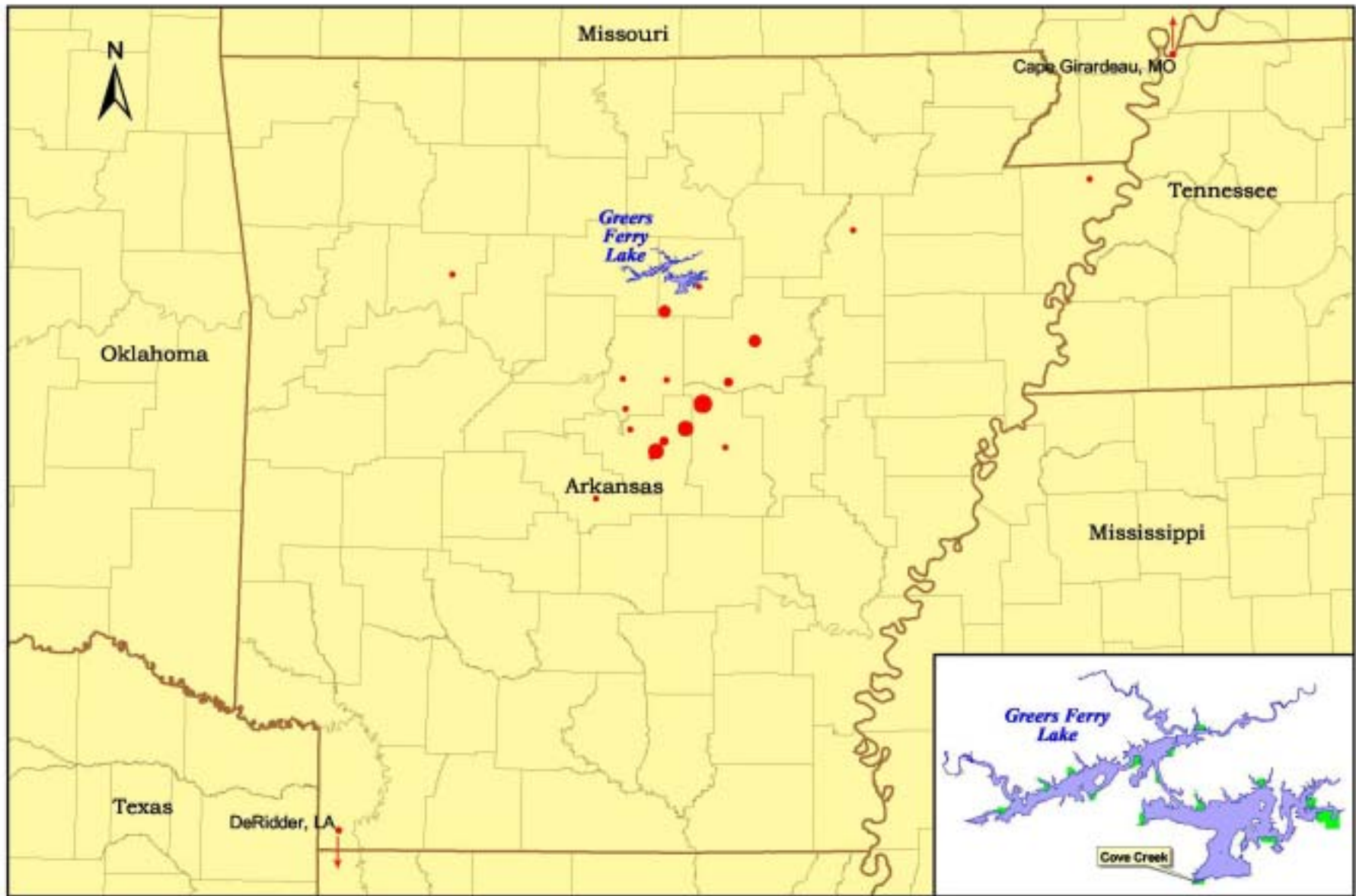
- State Boundary
- County Boundary

Number of Visitors



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- 2
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- 4 - 8
- 9 - 13

Origin of Visitors to Eden Isle Marina






Source: Survey Data, 2001.



LEGEND

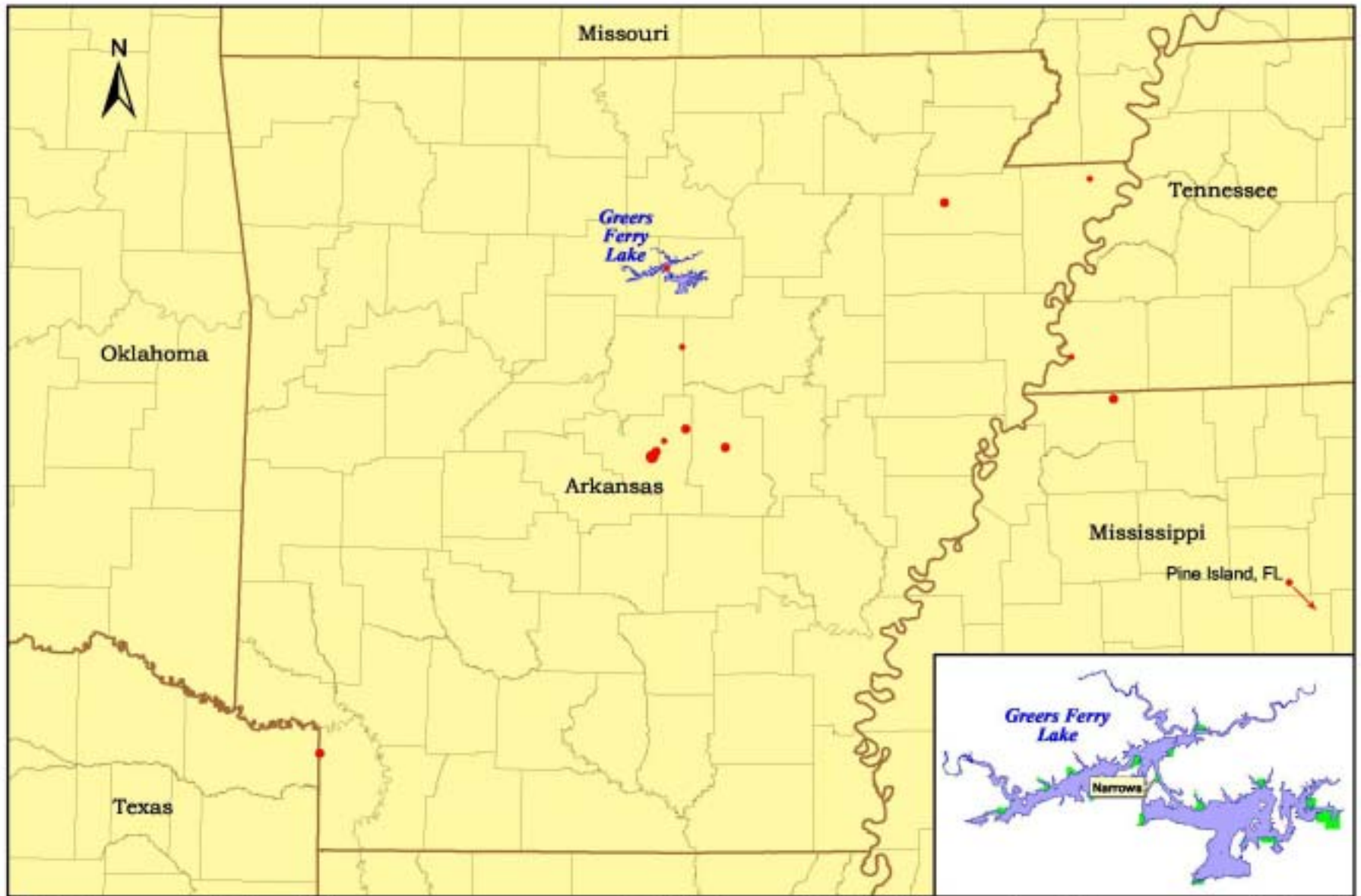
-  State Boundary
-  County Boundary

Number of Visitors

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-  4 - 8
-  9 - 13

Source: Survey Data, 2001.

Origin of Visitors to Cove Creek Park



LEGEND

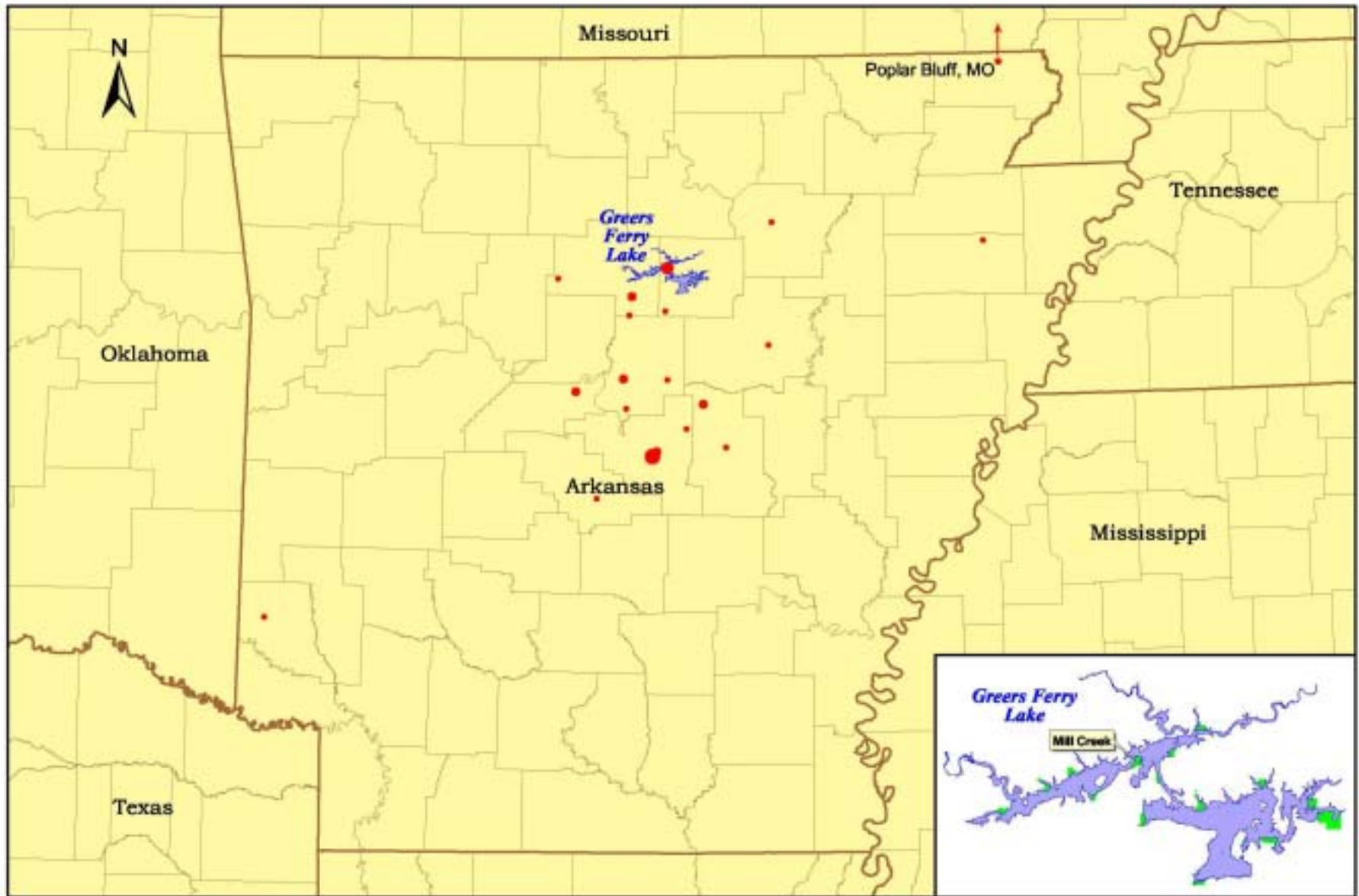
- State Boundary
- County Boundary

Number of Visitors



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- 3
- 4 - 8
- 9 - 13

Source: Survey Data, 2001.






Origin of Visitors to Narrows Park



LEGEND

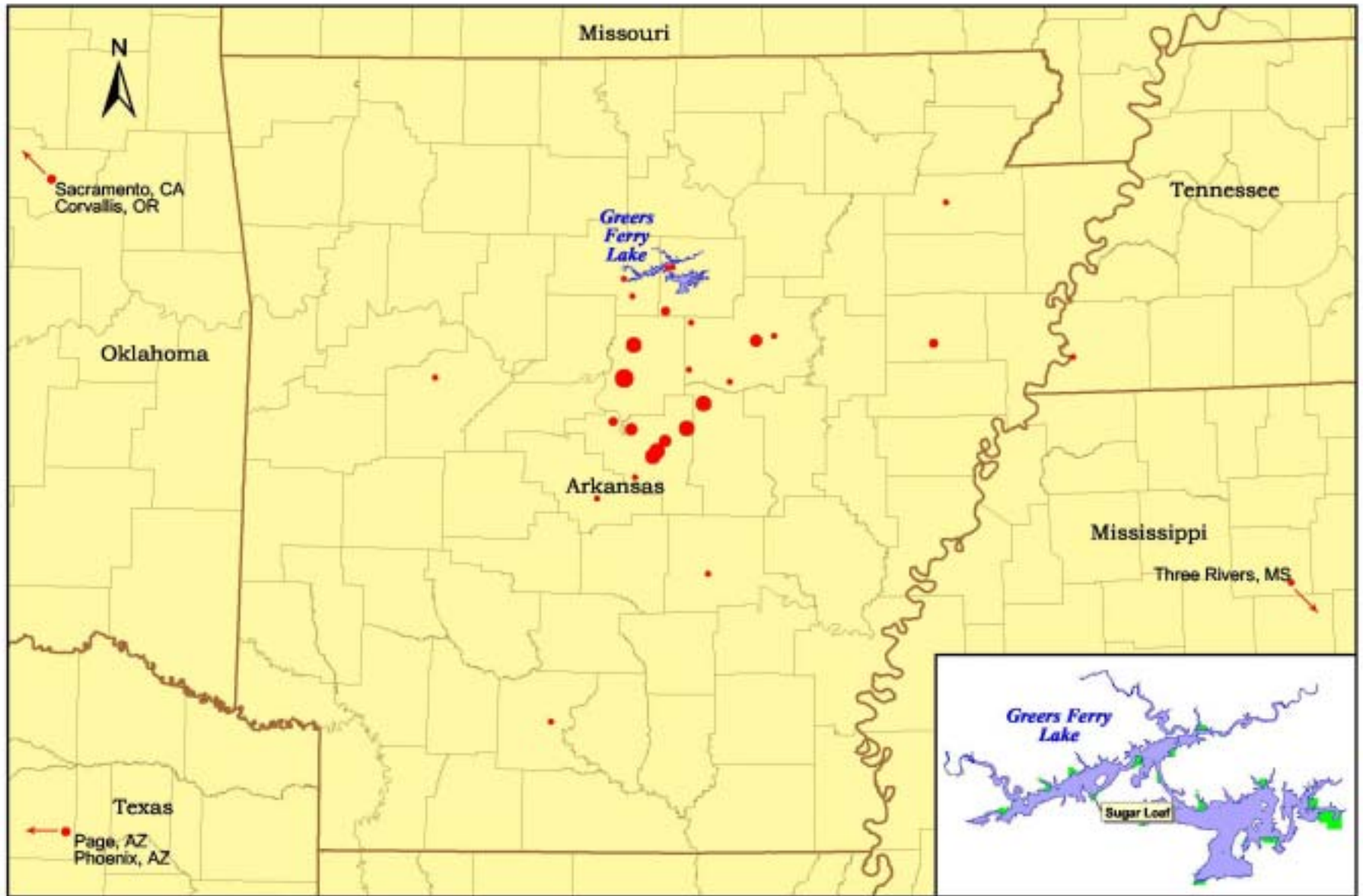
-  State Boundary
-  County Boundary

Number of Visitors

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-  4 - 8
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Origin of Visitors to Mill Creek Park

Source: Survey Data, 2001.



LEGEND

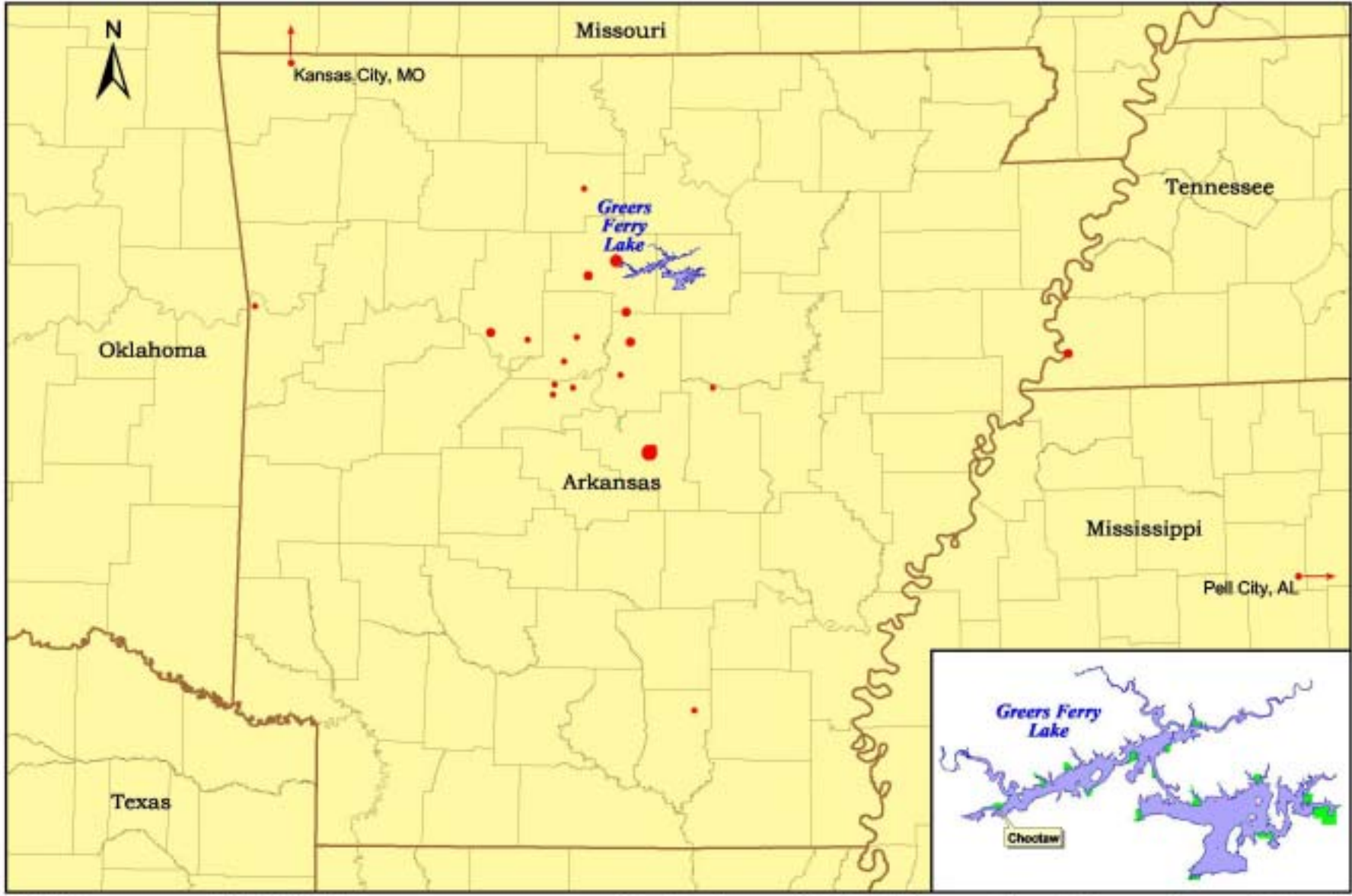
State Boundary
County Boundary

Number of Visitors

- 1
- 2
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- 4 - 8
- 9 - 13

Origin of Visitors to Sugar Loaf Park

Source: Survey Data, 2001.



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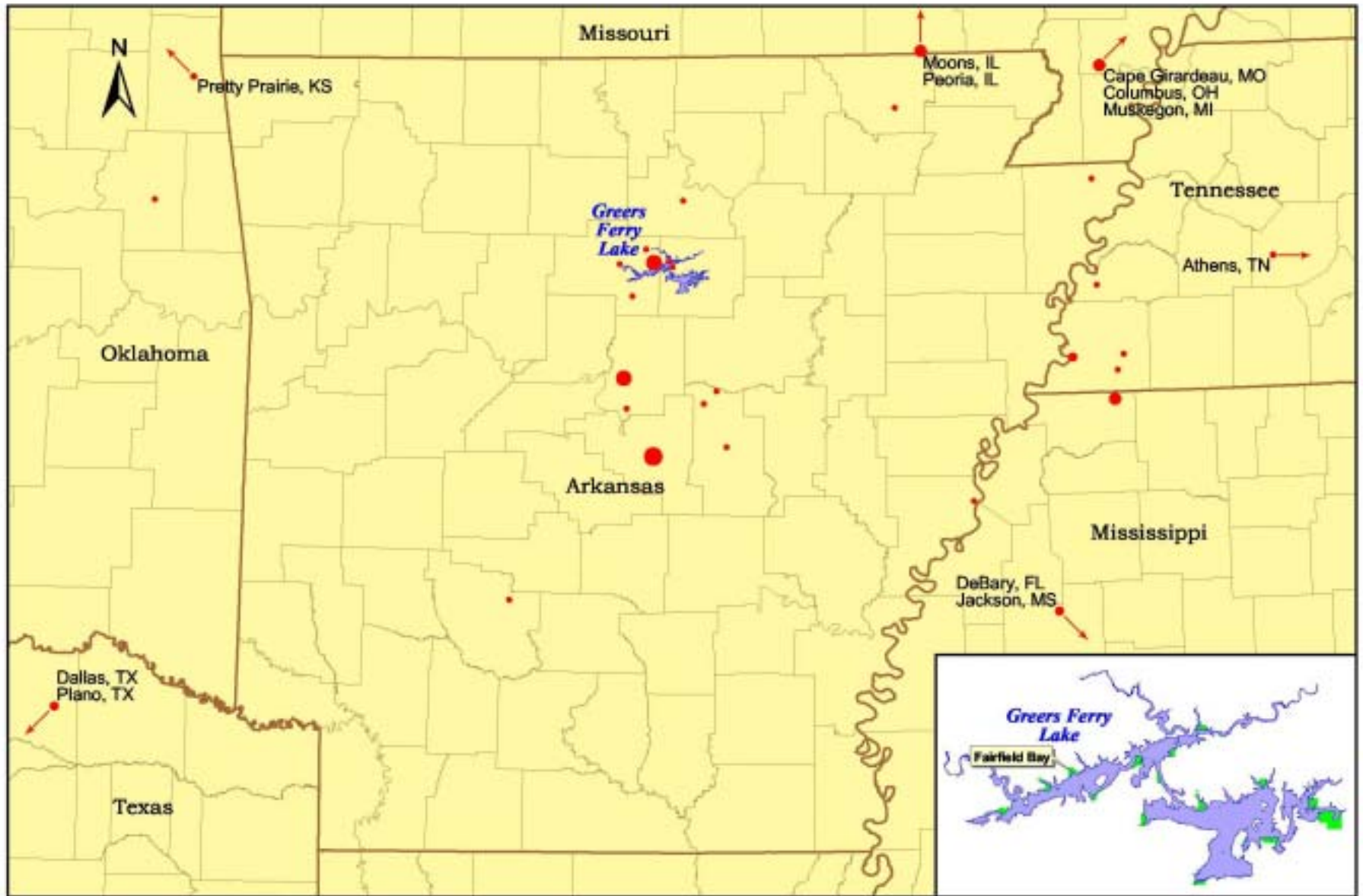
State Boundary
 County Boundary

Number of Visitors

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- 4 - 8
- 9 - 13

Origin of Visitors to Choctaw Park

Source: Survey Data, 2001.



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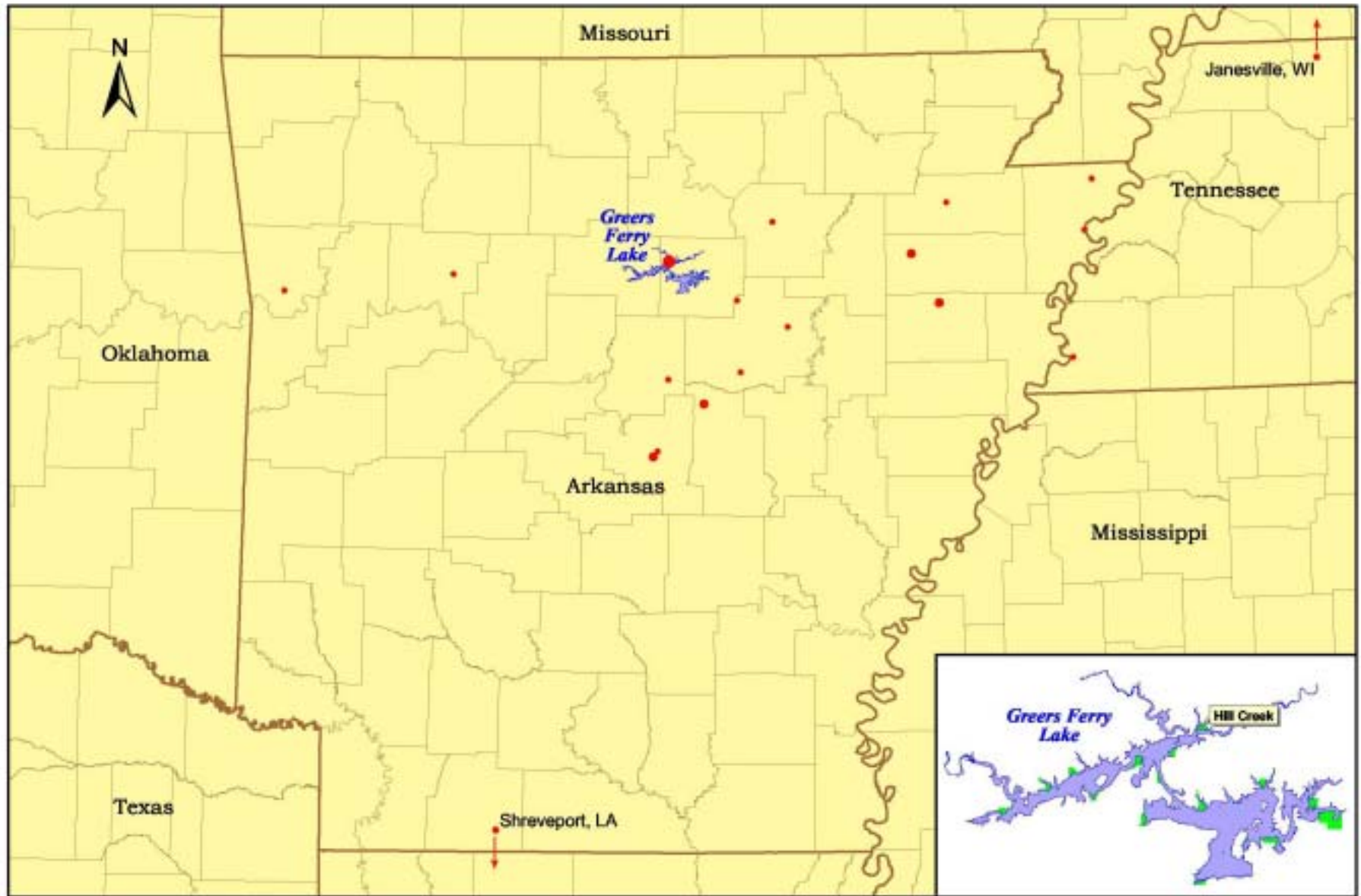
- State Boundary
- County Boundary

Number of Visitors

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- 9 - 13

Origin of Visitors to Fairfield Bay Park

Source: Survey Data, 2001.



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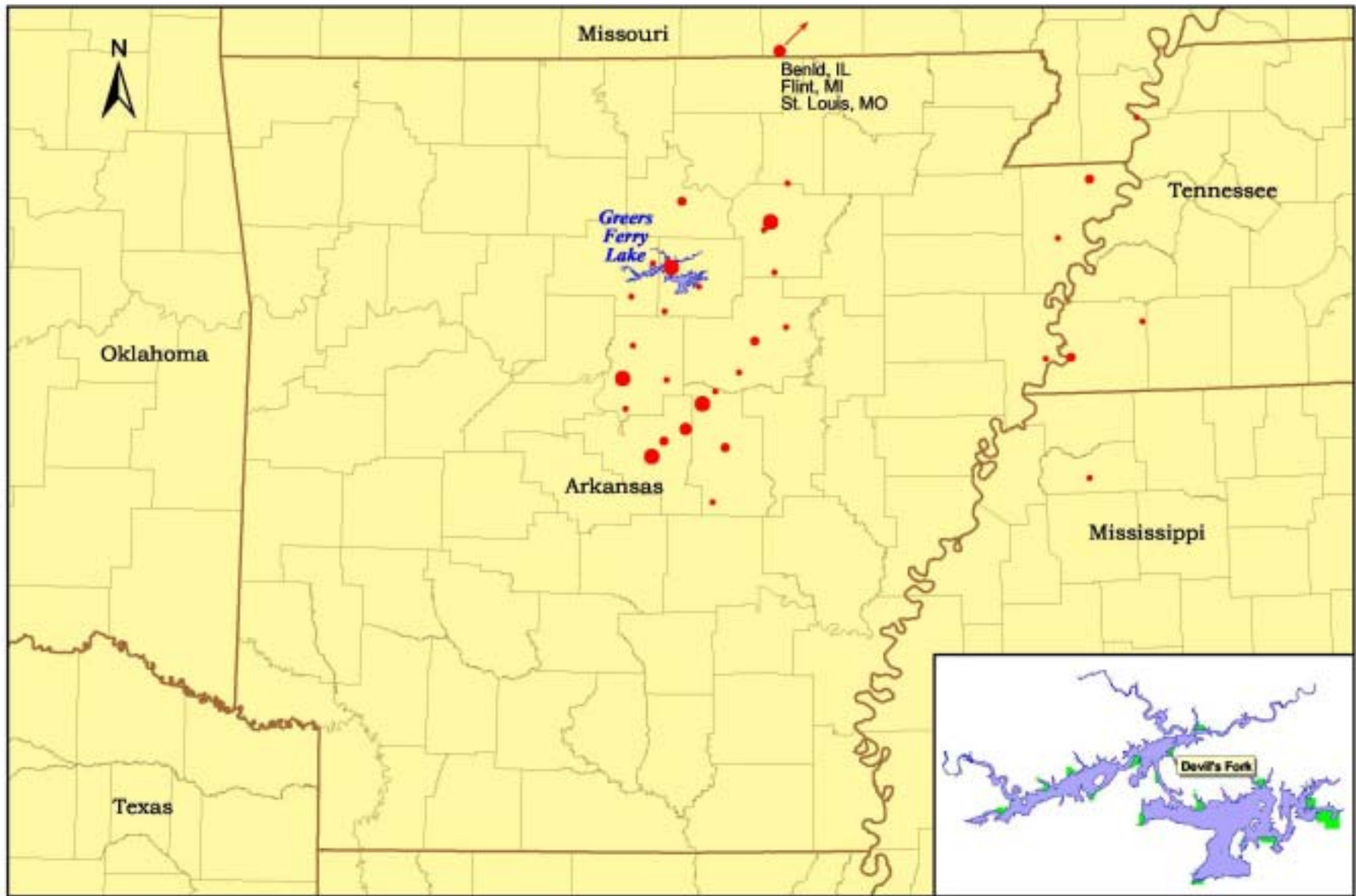
- State Boundary
- County Boundary

Number of Visitors

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- 2
- 3
- 4 - 8
- 9 - 13

Source: Survey Data, 2001.

Origin of Visitors to Hill Creek Park



LEGEND

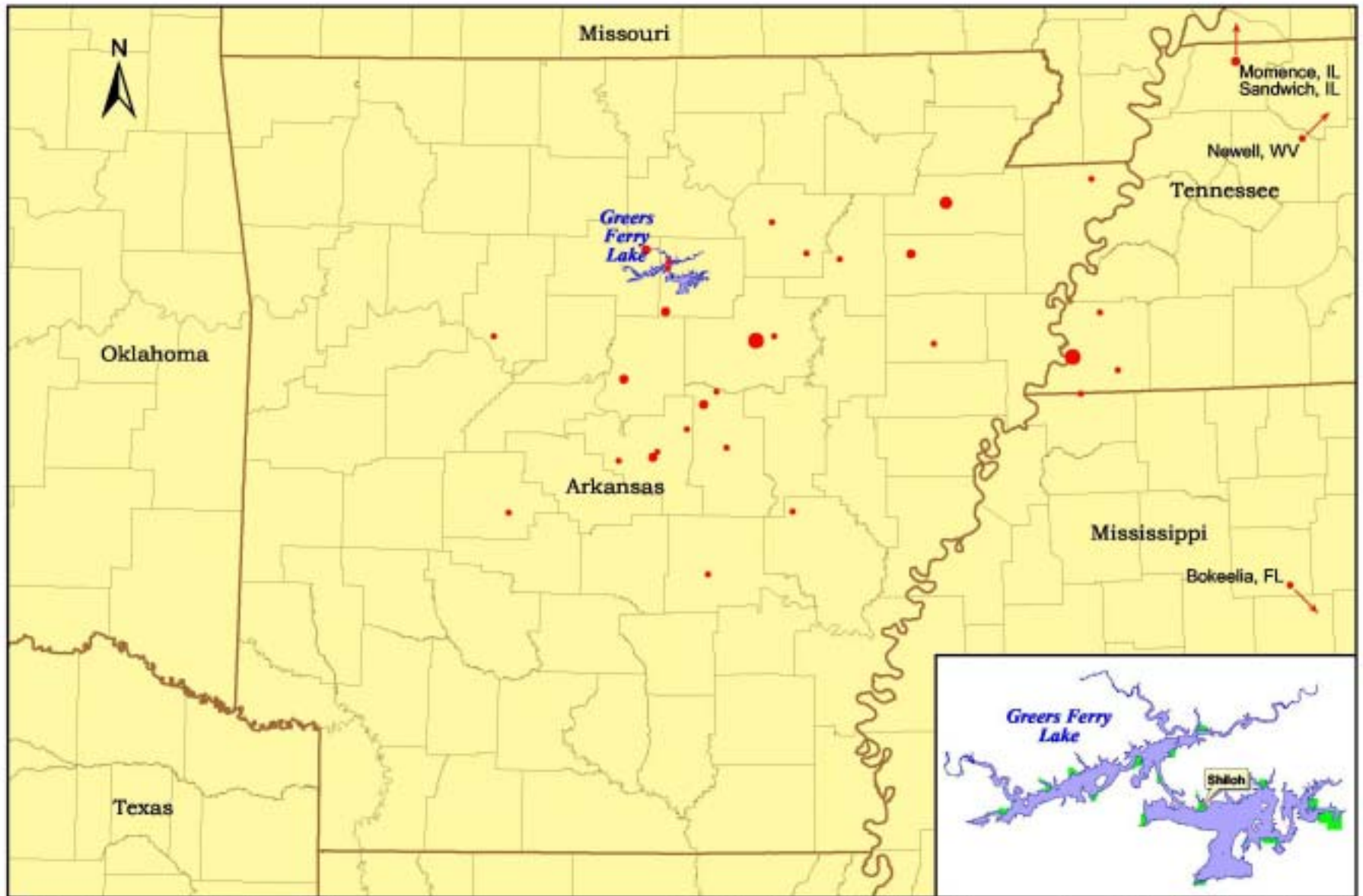
- State Boundary
- County Boundary

Number of Visitors

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- 4 - 8
- 9 - 13

Origin of Visitors to Devil's Fork Park

Source: Survey Data, 2001.



LEGEND

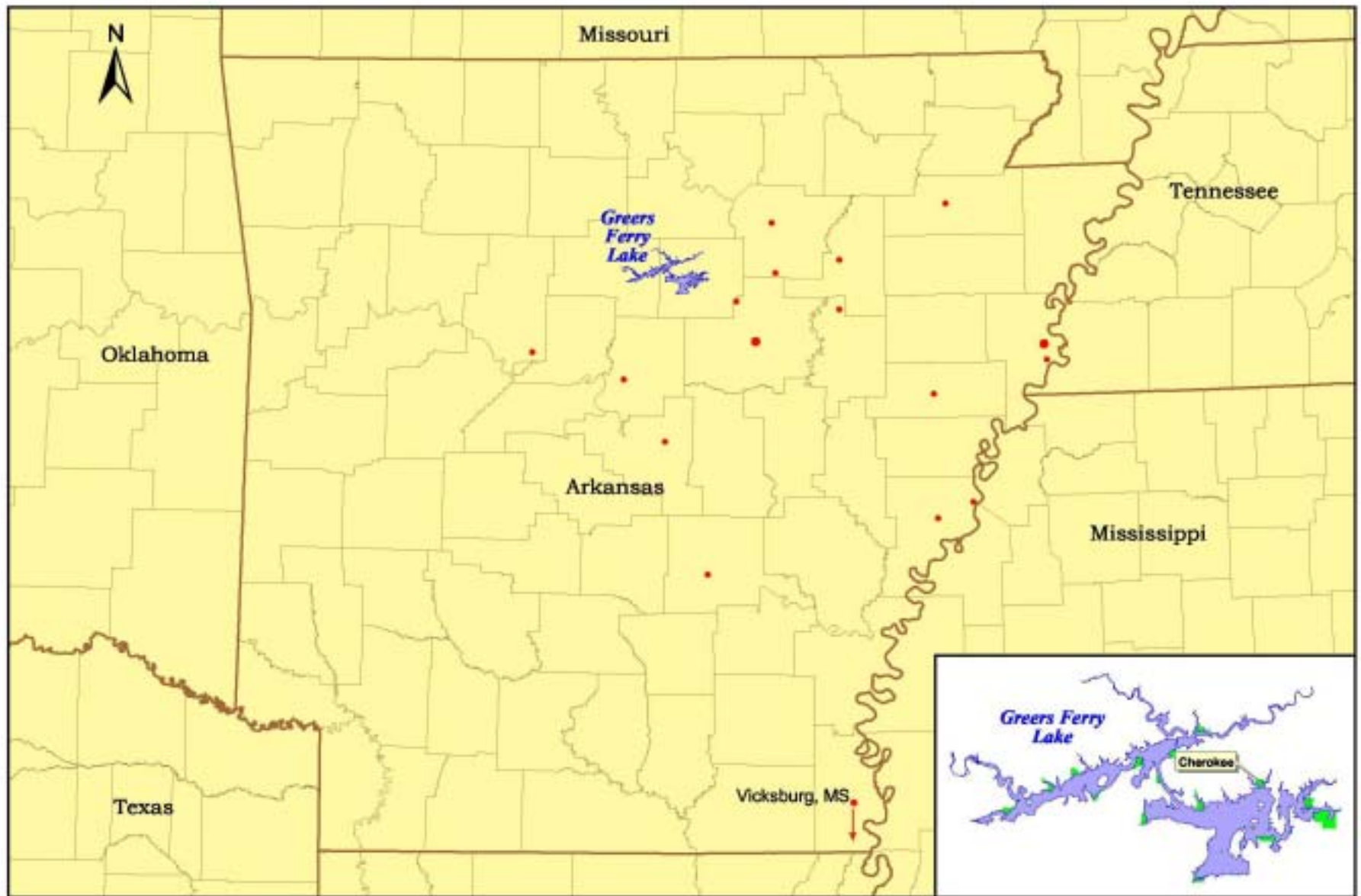
- State Boundary
- County Boundary

Number of Visitors

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- 4 - 8
- 9 - 13

Source: Survey Data, 2001.

Origin of Visitors to Shiloh Park



LEGEND

- State Boundary
- County Boundary

Number of Visitors

- 1
- 2
- 3
- 4 - 8
- 9 - 13

Source: Survey Data, 2001.

Origin of Visitors to Cherokee Park

Appendix G
Correspondence

Sam Pett

From: James_A._Laity@omb.eop.gov
Sent: Thursday, May 24, 2001 5:18 PM
To: Shaw, Peter SWD
Cc: 'cushingr@dior.whs.mil'; 'pettsa@tetrattech-ffx.com'
Subject: OMB Approval for Greers Ferry Lake Survey

The Greers Ferry Lake Surveys are approved subject to the terms of clearance for OMB Control Number 0710-0001. Specifically, the burden estimate for each survey should be changed from 10 to 20 minutes. Also, the instructions (which currently state that the surveys will take 15 minutes) should be changed to indicate that they will take 20 minutes.

The following editorial comments are offered for your consideration.

1) The Adjacent Landowner Summer Survey (mailed) seems to be premised on the assumption that adjacent landowners own and operate boats on the Lake. If this is not the case, many of the questions are irrelevant. Survey should start with a question about boat ownership and skip all irrelevant questions if the answer is no. Similarly, Q6 (% of time spent on various activities while at the lake) is somewhat ambiguous for this group. Do you mean while recreating at the Lake, or more generally while visiting their home, or even living there permanently? If the latter, the majority of their time is probably spent on activities not listed in the question. Also, for Q8, wouldn't most adjacent landowners have their own dock, rather than using a boat ramp? Q10 about expectations also seems off-point for this group, since they are presumably at the Lake a lot and would be unlikely to have "expectations" that are different from reality.

2) Maybe I don't understand the terminology "slip." (I'm not a boater). But, it seems to me that a slip renter would by definition be boating at the lake "before today" unless you just happened to catch him on the first day he rented the slip for. (I am assuming that slips are rented for a significant period of time, not one day). So Q 1 seems a little irrelevant. Also Q 4 refers to a boat launch. Would a slip renter be using a boat launch? Also, in all surveys, clarify whether you mean distance from permanent home or home at lake. For Q 7a, would anyone rent a slip for a canoe or row boat or jet ski, etc?

Please send me final copies of the surveys that incorporate any changes you make to address these concerns. However, you may proceed with the survey this weekend, without any further review from me.

Jim Laity
OMB/OIRA Desk Officer for USACOE
202-395-5168

May 25, 2001

Dear Mr. Shaw:

As requested by yourself and Mr. Laity, copies of the final questionnaires to be used during our surveys are attached and I have explained all changes here. Thank you very much for your prompt attention to this matter on such short notice. In the future I will certainly leave more lead time for approvals.

Below I describe the changes I incorporated into the Lake Boater Summer Survey:

1. The estimated time burden on the cover sheet and in the introductory remarks was changed to 20 minutes.
2. After considering the logistics of conducting the survey, with interviewers moving between boat ramps and marina slips, a single survey, the Lake Boater Summer Survey, was used and the Marina Slip Renter (personal interview) survey was not used for all interviews at the lake. Where questions did not apply to marina slip renters or would have been ambiguous for them, clarification was added, as noted below.
3. On Question 1, it was noted that marina slip renters would not have to respond to the first part.
4. At the suggestion of a person supervising the survey, from the Survey Research Center at the University of Arkansas, Question 3 on the location of a boater's permanent home was moved to the end of the survey.
5. Question 4 (renumbered Question 3) was reworded to clarify that one's permanent home was intended, and it was clarified that this was from a boat launch or marina.
6. While it is unlikely that a marina slip renter would use a canoe or jet ski, Question 7a (renumbered Question 6a) was left as is so as to be applicable for both boat ramp users and marina slip renters.
7. On Question 7 (originally Question 8), percentages were changed to hours, again at the suggestion of the survey supervisor.
8. On Question 9 (originally Question 10), "if applicable" was added for questionnaires with marina slip renters.
9. On questions with tables (Questions 13-15, originally 14-16), numbers were removed from the tables and boaters asked simply to check boxes.

Below I describe the changes I incorporated into the Adjacent Landowner Survey:

1. An option was added to the cover page for those who neither visit nor recreate at Greers Ferry Lake. For those respondents, they are instructed to check an option on the cover page indicating this and to complete only the final three questions.
2. The time burden for the questionnaire was changed to 20 minutes.
3. Question 11, on boat ownership, from the OMB Lake Resident Survey was inserted at the beginning to establish boat ownership. This made Question 5, on the type, horsepower, and length of boat used at the lake, irrelevant, and it was eliminated.
4. Question 1 (the question added from the Lake Resident Survey) was modified next to the *NO* option to indicate that the respondent could skip the subsequent 3 questions on boat use.
5. Question 4 was reworded to ask what "boat ramp *or* marina" the respondent uses.
6. Question 6 (renumbered Question 5) was clarified by adding "*recreating on*" to the latter part of the question.
7. Question 17 on the distance from the respondents home was clarified to indicate 'permanent' home.
8. The original Question 3 on the location of the respondent's permanent home was moved to the end.
9. Per your comments on whether adjacent landowners would have their own docks and have realistic expectations for the numbers of boats on the lake, the questionnaires are to be mailed not only to property owners who have docks and live immediately adjacent to the lake, but also to residents of

the surrounding area who may not visit the lake on a regular basis. For this reason, these questions were left in the questionnaire as they were.

Below I describe the changes I incorporated into the mailed version of the Marina Slip Renter Survey:

1. The time burden estimate for the questionnaire was changed to 20 minutes.
2. Questions 3 and 4, on the location and distance from the lake of the respondent's permanent residence, were moved to the end.
3. Question 4, on the percentage of time spent on various activities, was clarified to mean when the respondent is recreating on the lake.
4. Question 8, which had been left empty for data coding purposes, was eliminated to avoid confusion.
5. On Questions 11-14, now Questions 9-11, presented in tables, respondents were asked to check a box instead of circle a number and numbers within the boxes were removed.

Record of Phone Conversation

DATE	TIME IN	TIME OUT
26 June 2001	2:20 PM CST	3:00 PM CST

RECEIVED CALL FROM
Mike Betteker & Sam Pett

PREPARED BY
Tricia Anslow

SUBJECT
Recreational Carrying Capacity Study, Greers Ferry Lake

Conversation

We discussed several items pertaining with the Recreational Carrying Capacity Study. Sam responded to several concerns that I had raised during discussions with him on 6/21/01 and Mike Betteker 6/25/01. The following is a summarization of our conversation.

Issue: I asked Mike & Sam if they were still planning on mailing surveys and to whom. I was curious where they were getting names and addresses for adjacent landowners.

Reply: Sam is planning on mailing out surveys to adjacent landowner by the 29 June 01. He obtained the list from the tax assessor's office. It is a list of all landowners within a radius of the lake, not just those with property adjacent to government property on the lake. Although, this is not the government definition of adjacent landowners, I felt this is the appropriate representative sample of people living around Greers Ferry that mostly like use the lake on a regular basis. Also, Sam sent surveys to Marina owners and asks for a list of slip renters. Eden Isle responded to the survey, but did not provide a list, and Sam took that to mean they are not willing to provide a list.

Issue: Since we have changed both survey times and frequency of visits to ramps and marina from the original methodology that we started the study with, will this add a bias or alter the science in any way.

Reply: Sam spoke with Molly Longstreth, Director, UA Fayetteville, Scientific Research Center (SRC) about these issues. Molly said it is common to alter the survey due to physical limitations after it has begun. Such as we did by dropping South Fork as a survey point. Also, as long as we alter times and locations to fit a logistical schedule and not an attempt to target one group this will not introduce a bias. We spoke about the fact they we not be getting the full spectrum of lake users by only surveying from 12-6 PM. Sam & Mike agreed and Sam will add early morning survey points on the 5 & 6 of July. For the remaining survey, Sam is making as close as possible an even distribution of the amount of times the

surveyors visit a ramp or marina. So that one part of the lake is not excluded or over sampled.

Issue: Choctaw Marina was dropped as a survey point.

Reply: Sam informed me that the Marina owner asked the surveyors not to come back after the first set of surveys was completed. The surveyor was gathering surveys from the ramp and will continue to do so over the remaining survey days. I will get with Anthony Ragar to determine if they can do that.

Issue: We wanted to ensure that the most professional survey was being administered. This included the perception that surveyors were giving to the public while giving the surveys and their perception of the overall survey. We want to ensure that SRC is providing adequate supervision of the surveyors also.

Reply: Sam spoke with Karen Wilkerson, PDR, who has been on-site the entire survey period. Karen agreed that Donald Gooch, of SRC, was not always on time, and may have given the surveyors a sense of disorganization. Molly Longstreth will provide on-site supervision for the remainder of the survey period. All the surveyors have been instructed on how to address the public and minimize introduction of any bias, by saying anything in reference to their opinions of the lake, or this survey.

Issue: Are surveyors writing out surveys or handing out to the public to complete themselves.

Reply: If a surveyor encounters a single boat at a ramp or marina they will ask the questions and fill in the survey. If multiple groups are exiting, then the surveyors will be handed out to all, so that the surveyor is not selecting whom to give the survey. This should ensure the widest dissemination as possible.

Issue: Are we accessing the representative sample, to determine the sampling size in relationship to those uses the lake.

Reply: Did not have that intention. Will attempt to use counters from the marinas and ramps, plus the boat counts to make a determination of the % being sampled from actual. Need to check with Tommy about this.

Fax

To: Sharon

From: Sam Pett

Fax: 501-745-2474

Pages: 1

Phone: 501-745-2474

Date: 5/13/02

Re: Greers Ferry Lake T/R/S #s

CC:

Urgent **For Review** **Please Comment** **Please Reply** **Please Recycle**

Sharon:

The Township, Range, and Section numbers I selected from the soils map are:

T 11 N / R 13 W : Sections 5, 7, ~~11, 12, 14~~, 19, ~~21, 24, 30~~ (deleted due to not being in the county, or being in the lake!)

T 11 N / R 12 W: Sections 11, 19, 21, 24, 25, 27, 29, 31, 35

T 10 N / R 14 W: Sections 3, 4, 6, 13, 15, 16, 19, 25, 30

T 10 N / R 13 W: Sections 1, 2, 4, 5, 11, 27, 29, 31, 32

T 10 N / R 12 W: Sections 4, 12, 14, 16, 17, 21, 24, 27, 36

Please send the information and an invoice to:

Sam Pett

c/o Tetra Tech, Inc.

10306 Eaton Place, Suite 340

Fairfax VA 22030

Phone: 703-385-6000 x 159

Fax: 703-385-6007

Thank you very much for your assistance.

Appendix H
Comments on Draft Report with Responses

COMMENTS RECEIVED ON THE DRAFT RECREATIONAL CAPACITY STUDY, WITH RESPONSES

Comment Number	Page #	Section/Figure	Comment	Response
1	31	Fig 18 & 19	This appears to be conflicting information. In Fig. 18 most boaters say that private docks do not interfere with my use of the lake, but in Fig. 19 over 55% say there are too many. Is this contradictory, was there confusion with the questions, maybe.	These responses do appear to conflict. The questions were clearly worded, so confusion is unlikely. A possible explanation is that, while visiting boaters do not like to see private docks, they do not interfere with their use of the lake. Data were checked and the figures accurately reflect the results of the survey.
2	61	Appendix A	Would it be possible to group the additional comments or provide a summary of the main comments?	Additional comments were grouped by subject area; comments of boaters, marina slip renters, and adjacent landowners were kept separated.
3	77	Maps	I am assuming this will be in color for the final, otherwise, we need to use a hatch to make these more readable in black & white. The origin of visitor maps are also a bit difficult to distinguish at two per page. Could we add colors to the finals? I think the increasing circles in size are affective, but difficult to read at this scale.	All of the maps that require color for accurate interpretation will be in color in the final report. Visitor origin maps will be enlarged to one per page and will be in color.
4	2	Section 1.A.	Run on sentence, too long.	The sentence was revised.
5	11	Last paragraph	Please reference definitions and designations on page 4, to clarify "areas".	A reference to the lake area designations was added.
6	6-11	Tables	The tables are referenced in middle paragraph on page 6. It would be more helpful, if they were continually referenced in more descriptive paragraphs that followed. The paragraph that starts "The vast majority of boaters ... should reference table 1, and so on.	References to all tables and figures were added to the appropriate places in the text.

COMMENTS RECEIVED ON THE DRAFT RECREATIONAL CAPACITY STUDY, WITH RESPONSES

Comment Number	Page #	Section/Figure	Comment	Response
7	22-23	Tables	MSRs and Als are reference in Table 18, but not on subsequent figures.	“MSR” and “AL” were spelled out on all figures.
8	55	Table 36	Spell out unknown; unk not defined	“Unknown” was spelled out.
9	59	Last paragraph	Drop last sentence, “All surveyors were monitored... I don’t think that is completely accurate. Sentence should say something like, Although all surveyors could not be continuously monitored, they received training in conduct of surveys and were spot checked for compliance. There was some attendance problems, but only minor problems noted in surveyors conduct of surveys.	The original sentence was replaced with the suggested revised text.
10	3	Section 1, D.	Boater Exit Surveys, Para 1 & 2: The 15 parks should be revised to 14 and Eden Isle Marina. Change the number 14 on the 4th line to 13. On the last line of the paragraph, take out the words "or at" and change the word "are" to is". In the second paragraph, second sentence, change Nine to Eight and fourteen to thirteen. Somehow need to identify Eden Isle as a marina access only, it is not a park.	These revisions were made as suggested.
11	7	Appendix B: Fig 6	Should be Eden Isle Marina	Corrected.
12		Appendix C: Fig 3-6	Should be Eden Isle Marina. Where is the Dam Site visitor origin map? Also Fairfield Bay, is labeled Fig 3-6	“Eden Isle Marina” corrected. The Dam Site map was inadvertently omitted. All figure numbers were removed from the maps.

COMMENTS RECEIVED ON THE DRAFT RECREATIONAL CAPACITY STUDY, WITH RESPONSES

Comment Number	Page #	Section/Figure	Comment	Response
13		GENERAL	Some of the language gets a bit technical at times. This is an example "The distribution of responses to this statement differs from that for responses to the responses concerning clearing trees, but the pattern of landowners among marina slip renters and adjacent landowners is again similar but differs from that of surveyed boaters." Perhaps we could get someone to do a general editorial overview to make sure it is readable by the lay person.	The report was reread and the language was revised. A senior editor then reviewed the text and made further edits, which were incorporated into the text.