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Economic Impacts from Spending by Community Dock Owners at Table Rock Lake

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Final report

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Abstract: This report documents the local economic impacts of users of community-owned docks at Table Rock Lake, located on the border of Missouri and Arkansas. This economic assessment is based on the results of a 1999 survey of a sample of Table Rock Lake community dock owners. Spending estimates are adjusted to 2004 dollars. The economic impacts estimated for Table Rock Lake are useful for accountability purposes, lake support, and explaining the role of the lake in the region's economy. This report demonstrates how the survey results can be used to evaluate management alternatives and strategies and to conduct sensitivity analyses.

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Summary

This report documents the local economic impacts of owners and guests of community-owned docks at Table Rock Lake, located on the border of Missouri and Arkansas and situated within the U.S. Army Corps of Engineers District, Little Rock. This economic assessment is based on the results of a 1999 survey of a sample of Table Rock Lake dock owners. Spending estimates are adjusted to 2004 dollars.

At its conservation pool level, Table Rock Lake encompasses 43,100 surface acres and has 745 miles of shoreline, and operates 13 campgrounds. Due to its proximity to the Mark Twain National Forest and Buffalo National River and its location in the Ozark Mountains, Table Rock Lake benefits from the substantial tourism draw of the region. One of the largest attractions in the local area is Branson, Missouri, which has changed the complexion of tourism in the local region. Total tourism activity in the six-county region surrounding Table Rock Lake is \$605 million, or 6.4 percent of all economic activity in that region.

Access to large bodies of water and their related resources, including scenic views, makes Corps of Engineers' lakes desirable for the location of private residential areas and their associated community-owned docks. The Corps of Engineers began permitting community-owned docks on Table Rock Lake in 1972. Since 1999, over 1,050 community-owned docks have been permitted. The estimated 321,477 party trips taken by community dock owners/users in 1999 accounted for 19 percent of total recreation usage at the lake.

A single community-owned dock permit on Table Rock Lake allows for a structure that maintains a minimum of 12 slips and a maximum of 20 slips. Each boat in each slip must be a registered watercraft with an Arkansas or Missouri registration. Each of the permitted docks has a single president or point of contact for the dock association or group of slips in the dock. This point of contact was our initial point of reference when conducting these surveys.

In 1999, owners/users of community-owned docks spent significant amounts of money in the local area, including \$50.9 million on trip-

related items (gasoline, meals, lodging, etc.) and \$5.8 million on new boats, dock maintenance, insurance, and other annual services. Together, this \$56.7 million in spending in the six-county region surrounding Table Rock Lake provides the economic base for \$34.2 million in direct sales, \$12.4 million in direct personal income (wages and salaries) for local residents and 743 jobs in tourism-related businesses. The \$34.2 million in direct sales is about 5.8 percent of the total of all tourism activity (\$605 million) (sales have been price-inflated for this computation). In 2004 dollars, these figures become \$61.6 million in trip-related expenditures and \$7.0 million in new boats and annual expenses. The added economic effect – in 2004 dollars – are \$41.4 million direct sales and \$15.1 million in direct personal income.

The figures above are direct effects only of the \$56.7 million in dock owner/user spending in 1999. Another \$17.4 million in sales (\$21.1 million in sales in 2004 dollars) is generated through secondary effects, as dock owner/user spending circulates through the local economy. While the direct effects accrue primarily to the retail trade sector, restaurants, manufacturing (mainly because of the purchases of new boats locally), and services, secondary effects benefit a wide range of local businesses. The tourism sales multiplier for the region is 1.51, indicating there is \$0.51 in secondary sales for every dollar of direct sales.

Visitor segmentation is useful for planning purposes. This report provides results for the full sample of community dock owners/users and for dock owner segments that are useful for planning purposes: day use versus overnight stay dock owners, and dock owners in three boat size classes. Day users comprised 59 percent of the sample of community dock users, while 41 percent spent at least one night in the area on their last trip. In terms of total spending in the local region, day users of community docks contributed 54 percent and overnight stay dock users, 46 percent. Nearly 70 percent of the sample had small-sized boats (20 ft and smaller), while 29 percent were medium (21 to 30 ft) and roughly 1 percent were large (above 30 ft). Dock users with small length boats contributed 59 percent of total spending locally, and those with larger boats contributed 40 percent. Users of largest boats contributed the remaining 1 percent.

The economic impacts estimated for Table Rock Lake are useful for accountability purposes, lake support, and explaining the role of the lake in the region's economy. This report demonstrates how the survey results

can also be used to evaluate management alternatives and strategies and to conduct sensitivity analyses.

Preface

The work reported herein was undertaken for the “Measuring the Economic Effects of Boat Dock Permit and Marina Slip Holders” work unit of the Recreation Management Support Program (RMSP). The RMSP is funded by the Operations and Maintenance (O&M) General Appropriation and encompasses activities previously conducted through the Recreation Research Program and the Natural Resources Technical Support Program. The U.S. Army Engineer Research and Development Center (ERDC) provides program management support for execution of approved RMSP activities. The RMSP is managed at ERDC by Scott Jackson, Environmental Laboratory (EL). Kathleen Perales has served as Principal Investigator of the work unit since its creation in 1995.

This report documents a joint effort between ERDC and Michigan State University under contract with the United States Department of Agriculture to conduct lake level investigations on the economic spending patterns of visitors to communities, private boat docks, and marinas on Corps of Engineers water resources projects.

A Recreation Leadership Advisory Team (RLAT) provides oversight for the RMSP. The team has representatives from each Major Subordinate Command/Regional Office within the Corps of Engineers. In addition, four district offices and four project offices are represented. Donald Dunwoody, RLAT representative from the Northwestern Division, served as proponent for this work unit.

This report was prepared by Benoni Amsden and Dr. Dennis Propst of Michigan State University under USDA contract. Dr. Wen-Huei Chang, ERDC, performed all economic impact analyses. Dr. LiChu Lee, ERDC, served to verify all data elements. Richard Kasul, ERDC, and Kathleen Perales, ERDC, were responsible for the design, instrumentation, sampling frame, and contract oversight. This work was conducted under the general supervision of Scott Jackson, Acting Chief, Ecological Resources Branch (ERB); Dr. David Tazik, Chief, Ecosystem Evaluation and Engineering Division (EEED); and Dr. Beth Fleming, Director, EL.

Peer Reviewers of this report were Michael T. Dowell, Natural Resources Specialist, Little Rock District, USACE, and Carl M. Smith, Biologist, Fort Worth District, USACE.

COL Richard B. Jenkins was Commander and Executive Director of ERDC. Dr. James R. Houston was Director.

Foreword

This report represents one of nine market segmentation studies conducted at Corps of Engineer (Corps) water resources projects (lakes). The economic impact studies were conducted in 1999 and the information has been converted to 2004 dollars. It should be noted that no single study provides a complete portrait of any lake's boating market. The studies were limited to three market segments, marina slip renters, private dock, and community dock owners. These three groups do not reflect the spectrum of boating usage or market segments at any one of the lakes studied. The primary purpose of the studies was to obtain an understanding of these three market segments.

In addition to recreation usage, each of these segments is handled under different real estate instruments or shoreline use permit instruments. Marina slips (one boat per slip) are handled by the Corps through a lease agreement with the marina operator. Individual marina operators (lease holders) were involved in the development of contact lists for individual slip renters. Private dock owners (one dock permit, one household, potentially multiple boats) have a direct shoreline-use permit with the Corps and pay a fee. Community docks (one dock permit, multiple households, one boat per slip, a single household may hold multiple slips) are not tied to a single household but to a group of homes within a community. This permit type has a single point of contact (e.g. homeowner association). Typically the fee for a private or community dock permit is between \$30 and \$35 for 5 years. Additional administrative fees may also be collected to recover the actual cost of administration inspections and processing of permits. The cost is variable.

The lakes and market segments studied were:

- Table Rock Lake, community dock
- Rough River Lake, community dock
- Pomme de Terre Lake, community dock
- Harry S. Truman Dam and Reservoir, marina
- Raystown Lake, marina
- Hartwell Lake, private dock

- Lake Barkley, private dock
- Lake Sidney Lanier, private dock and marina

Each of the lakes studied has a variety of boating and water usage issues that were not a part of this economic impact evaluation. This economic impact assessed recreation visitor trip spending and annual durable goods-related expenditures. In order to provide managers with a tool to assess the effects of management, this report outlined the spending categories of boat owners and visitors associated with the recreational trip under study. Examples are provided illustrating changes in the number of boat trips and the changes that could be seen in economic impacts. These are provided as illustrations. The same illustration can be used by managers to help assess low water conditions and boating trips lost, to get a sense of the change in economic impacts. This study did not include the impacts of additional boats over time to determine changes in use, water quality, social or environmental impacts or the like. This study did not include the changes in use based on the increases in gasoline prices or technological changes in boating products. These are elements outside the study parameters and would serve as useful points of departure for further research. These reports should be evaluated in part with the larger boating usage that occurs at the individual lake and the changes that have occurred over time (including expenditure changes such as the increasing cost of gasoline). They serve in part to document a baseline, which in part justifies publication at this late date.

For example, at a single lake, boating utilization should be evaluated within a larger context of the multipurpose mission of each of the lakes. To get an understanding of historical use and issues at Corps of Engineers facilities, the following documents have been recommended for further study: national and state regulations, project master-planning documents, shoreline management plans, environmental assessments, and other local studies. Consult the local project manager for an assessment of other documents that should be considered in addition to the ones provided.

1 Introduction

This report documents the local economic impacts of community-owned docks¹ at Table Rock Lake, located on the border of Missouri and Arkansas. These estimates are then adjusted to 2004 dollars. Economic impacts are measured as the direct and secondary sales, income, and jobs in the local area resulting from spending by those who use community-owned docks. The economic estimates are produced using the Recreation Economic Assessment System (REAS) (Chang et al. 2001). Three major inputs to the model are:

- number of visits broken down into day use/overnight segments and three boat size segments
- spending averages for each segment
- economic multipliers for the local region

Inputs are derived from results contained in this report, the Natural Resource Management System (NRMS) database (U.S. Army Corps of Engineers (USACE) 2006c), and IMPLAN input-output modeling software (Minnesota IMPLAN Group 1996). The REAS model (USACE 2006a) provides a spreadsheet template for combining dock user visitation data, spending, and regional multipliers to compute changes in sales, personal income, jobs, and value added in the region.

Table Rock Lake

Completed in 1958, at its conservation pool level, Table Rock Lake encompasses 43,100 surface acres, and boasts 745 miles of shoreline (Figure 1). The Corps of Engineers operates 13 campgrounds on Table Rock Lake, which is in close proximity to portions of the Mark Twain National Forest. Additionally, 13 marinas with over 3,000 slips and over 100 nearby resorts provide visitors with recreation opportunities that include fishing, boating, diving, hiking, and hunting. Its location within

¹ Community Docks: Community docks are privately owned, multi-slip facilities shared and used by several groups of people. These docks should be permitted under the authority of ER 1130-2-406 (USACE 1999). Do not include commercial docks or marinas.

Private Docks: A private dock is one that serves only one property owner. These docks should be permitted under the authority of ER 1130-2-406 (USACE 1999). Do not include commercial docks or marinas. (USACE 2006c).

the Ozark Mountains, a major tourist destination region, results in substantially high numbers of visitors at Table Rock Lake (USACE 2006b).

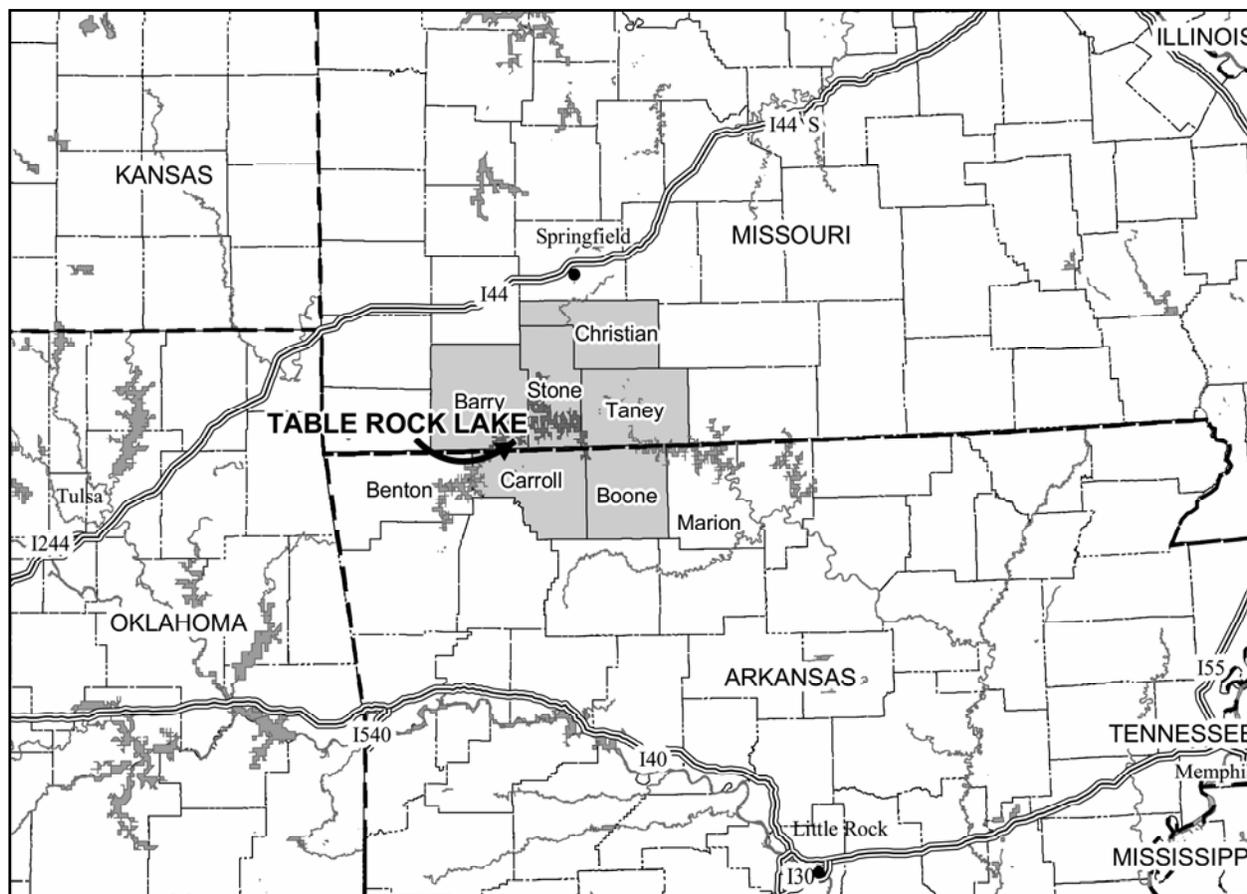


Figure 1. Table Rock Lake and the surrounding region.

Table Rock Lake hosted just over 5.2 million recreation visits in 1999, 96 percent by day users (Table 1, top row). Non-boaters accounted for 4.1 million day use visits, and boaters another 840,000. Since visitor spending and economic impacts in this report are based on party-days or nights, these figures are shown on the bottom row of Table 1. In 1999, there were 2.05 million party-days of recreation use.

The Corps of Engineers began permitting community-owned docks on Table Rock Lake in 1972. Since 1999, over 1,050 community-owned docks have been permitted. A single community-owned dock permit on Table Rock Lake allows for a structure that maintains a minimum of 12 slips and a maximum of 20 slips. Each boat in each slip must be a registered watercraft with an Arkansas or Missouri registration. Each of the permitted docks has a single president or point of contact for the dock

association or group of slips in the dock. This point of contact was our initial point of reference when conducting these surveys.

The Local Region

Table Rock Lake occurs within four counties in Missouri and two counties in Arkansas. These six counties comprise the local economic impact study region for Table Rock Lake.¹ According to the U.S. Census Bureau (2006), the population of this area is 215,961 (2000) or 234,054 (2004 estimate). The average median household income of these counties is \$31,406 (1999), compared to the two-state average median of \$35,058 (1999).

The Construction, Manufacturing, Other Services, and F.I.R.E. (finance, insurance and real estate) sectors are the principal economic base of the area, combining to account for 53 percent of sales, 42 percent of jobs, and 46 percent of employee wages in the six county regions (Table 2). An estimate of total tourism sales in the local region is \$605 million (Table 2: 100 percent of hotel/motel + 100 percent of amusement & recreation + 25 percent of restaurant + 25 percent of retail sales)². Thus, tourism accounts for 6-7 percent of sales in the region and 11-12 percent of jobs³. In 2000, hotel sales in the area were \$265 million supporting 5,231 jobs in the hotels and lodging sector (Minnesota IMPLAN Group 2000).

¹ Missouri counties: Barry, Christian, Taney, Stone; Arkansas counties: Carroll, Boone.

² Other estimates of tourism activity in the region are higher than \$605 million. Summing State of Arkansas and Missouri 2001 estimates from independent sources results in \$784 million in tourism activity in the region (MU – Tourism Economics Research Initiative “Missouri Division of Tourism Report, appendix” Missouri Economic Research and Information Center, <http://missourieconomy.org/pdfs/eify03.pdf> (Accessed March 30, 2006), and http://www.arkansas.com/economic_report05/Table%203.pdf, “Impact of Travel on Arkansas Counties, 2001”), (accessed March 30, 2006).

³ However, the impact of tourism among the six counties varies a great deal. For example, the proportions of tourism taxable sales revenue to total taxable sales revenue in Stone and Taney Counties, Missouri, were 40 and 42 percent, respectively, in 2000. In terms of employment, tourism accounted for 32 percent of jobs in Stone County and 38 percent in Taney County (see: MU – Tourism Economics Research Initiative “Missouri Division of Tourism Report, appendix” Missouri Economic Research and Information Center, <http://missourieconomy.org/pdfs/eify03.pdf> (Accessed March 30, 2006).

Table 1. Summary of recreation visits to Table Rock Lake, 1999.

Parameter	Camper ¹		DayUser ²		OtherOvernight ³		Total
	Boat	Non-Boat	Boat	Non-Boat	Boat	Non-Boat	
Visits (Person-Trips, 1,000s)	12.3	59.9	840.0	4,101.3	25.2	123.0	5,161.8
Average Length of Stay (Days)	4.2	3.8	—	—	2.4	3.0	—
Average Party Size	3.5	2.8	2.8	2.8	3.3	2.5	—
Visits (Party-Days, 1,000s)	14.8	82.8	301.8	1,482.3	18.6	149.2	2,049.5

¹ Number of campers in *party days* was derived from the 1998 Natural Resources Management System (NRMS) (USACE 2006c), CUR_FEE database (the last year that camper revenue data is available) by dividing total camping revenue by an average of \$8.00 per party day camping fee and expanding by the number of non-Corps managed campsites. The number of camper party-days was then adjusted to 1999 by multiplying the ratio of 1999 visits to 1998 visits from the PR_USE database. Then, party-days were converted to person-trips by the following formula: Number of campers in *person-trips* = number of party-days times average party size / average length of stay. Percent of boaters was obtained from the NRMS, PR_USE database. Party size and length of stay figures are based on the results of a national survey (Chang et al. 2003).

² Number of day users in *person-trips* was derived from the 1999 NRMS (USACE 2006c), PR_USE database by subtracting camper visits from total visits. Then, number of day users in *party-days* = number of person-trips times average length of stay / average party size. Percent of boaters was obtained from NRMS, PR_USE database.

³ Assumes that 3 percent of day users stayed overnight in lodging accommodations outside of project boundaries.

Table 2. Economic activity in the Table Rock Lake region, 2000

Industry	Output (\$ millions)	Employment	Employee Compensation (\$ millions)	Value Added (\$ millions)	% Output
Agriculture, Forestry, Fish	464.14	8,248.82	27.89	120.01	4.9%
Mining	45.08	126.54	2.95	8.55	0.5%
Construction	1,201.63	11,941.00	260.41	394.02	12.7%
Food Processing	962.81	6,138.07	164.12	213.12	10.2%
Apparel	88.48	1,008.38	20.79	26.67	0.9%
Manufacturing	1,457.32	10,489.40	306.42	449.80	15.4%
Sporting Goods	93.93	729.05	21.99	41.83	1.0%
Auto Parts and Access	0.92	5.20	0.22	0.30	0.0%
Transportation & Communication	540.07	4,616.88	122.61	233.43	5.7%
Other Services	1,184.19	21,017.26	465.23	719.20	12.5%
Wholesale Trade	258.92	3,463.80	100.17	176.03	2.7%
Retail	543.06	15,079.48	228.65	432.18	5.7%
Eating & Drinking	326.96	9,036.28	117.65	173.36	3.5%
Finance, Insurance & Real Estate	1,202.72	8,512.25	135.53	842.70	12.7%
Hotels and Lodging Places	265.03	5,230.79	91.67	159.51	2.8%
Auto Services	81.79	1,145.60	18.91	45.24	0.9%
Other Amusements	188.41	3,145.09	42.90	65.20	2.0%
Amusement and Rec Services	121.97	3,237.18	45.65	79.36	1.3%
Gov't and Other	445.60	11,706.79	340.95	387.71	4.7%
Total	9,473.02	124,877.86	2,514.70	4,568.23	100.0%

Source: IMPLAN, 2000 county data files for the six-county (MI/AR) region.

2 Community Dock Owner Survey, 1998-99

The Ecological Resources Branch (ERB) of the U.S. Army Engineer Research and Development Center (ERDC) surveyed community dock owners at Table Rock Lake (Missouri/Arkansas), Rough River Lake (Kentucky), and Pomme de Terre Lake (Missouri). The ERB staff designed the survey, constructed the instrument, and provided the frame (a list of community dock owners) to the Institution for Public Policy and Social Research (IPPSR) at Michigan State University (MSU) for sampling. IPPSR obtained additional approval through MSU's Human Subjects Office. The Office of Management and Budget authorized this study (Institute for Water Resources (IWR) 2006).

Working with the project managers, the ERB obtained lists of community dock owners. Once the contact information was received, MSU IPPSR staff sent a pre-contact mailer to the dock owners in the sample. This information packet included a description of the study and a FAQ sheet for the dock owner. In addition, the dock owners received a worksheet outlining the spending categories and other information regarding the upcoming telephone interview. Calls were made to dock owners in a randomly ordered sequence until a quota of interviews was completed. In this manner, 395 randomly selected community dock owners were interviewed at Table Rock Lake.

Spending and trip information were obtained through a Computer Assisted Telephone Interview (CATI) survey conducted by MSU IPPSR staff. Dock owners were asked to document the number of boating trips on the lake that originated from their dock and to report trip spending associated with their most recent trip. Spending information was collected only for the most recent trip to reduce recall bias and avoid selective recall in which they may report spending on the most expensive trips. The telephone interview lasted an average of 15 minutes. Other information needed to estimate parameters for this population was also acquired during the interview.

3 Results

Results are provided in four parts: respondent profiles (including socio-economic characteristics); recreation trip characteristics (amount of boat use, recreation activities and boat type); per-trip and annual spending; and the economic impacts of community dock owners'/users' spending on the local region surrounding Table Rock Lake.

Respondent profiles

The general characteristics of community dock owners as individuals and by households at Table Rock Lake are shown in Figures 2 to 11. In general, the community dock owners were mostly white males with high education and income. Among the respondents, 82 percent were male and 88 percent were aged 46 and above (Figures 2 and 3). The average age was 60 (range = 23 to 90 years old). The most frequent age (mode) was 60. Sixty-four percent of the dock owners had at least some college education and 40 percent had college degrees or more. Twelve percent of Table Rock's community dock owners held graduate degrees (Figure 4). Almost all of the owners interviewed were white (Figure 5). All community dock slips have registered boats; surveys may or may not have been conducted with the registered boat owner. Eighty-one percent of the respondents were also the registered boat owner at the time of the interview (Figure 6).

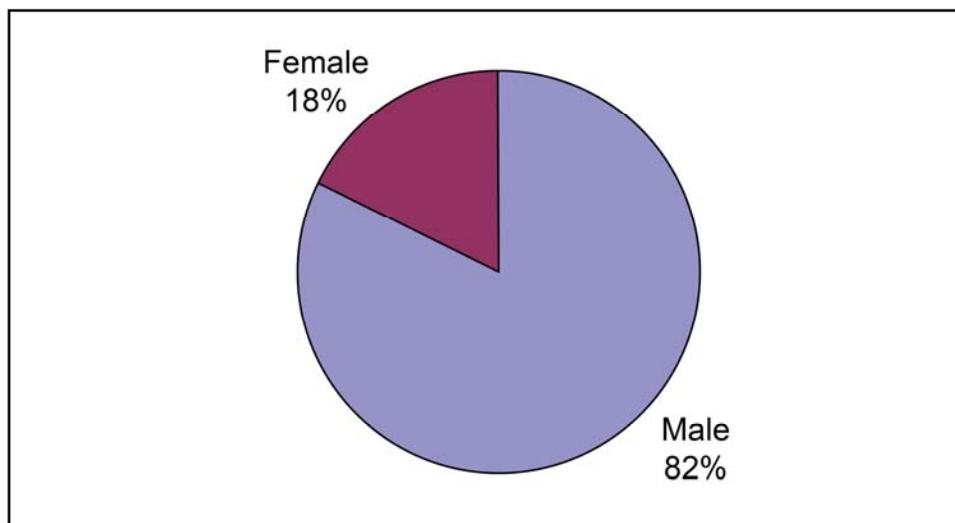


Figure 2. Gender of community dock owners at Table Rock Lake, 1999 (N=391).

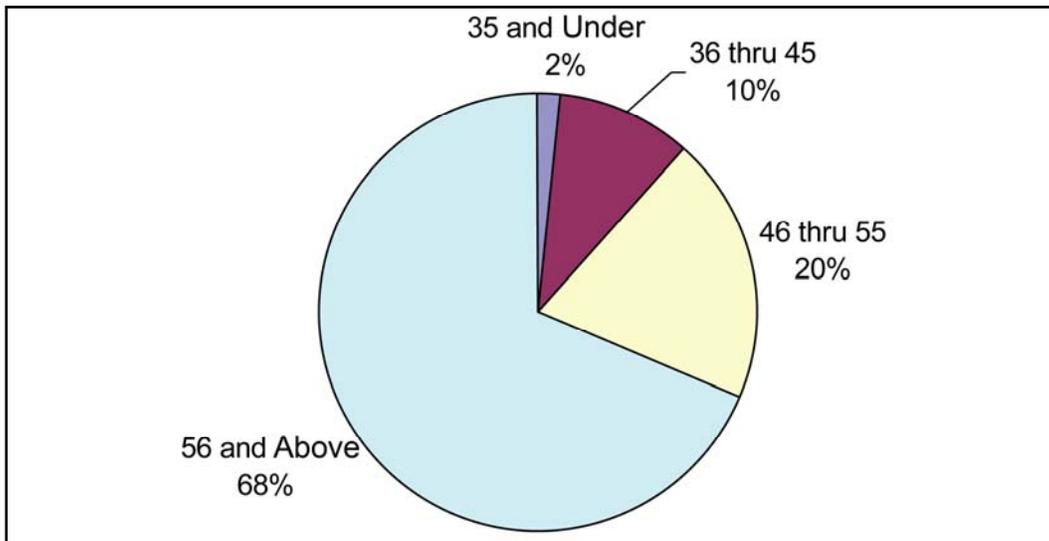


Figure 3. Age of community dock owners at Table Rock Lake, 1999 (N=378).

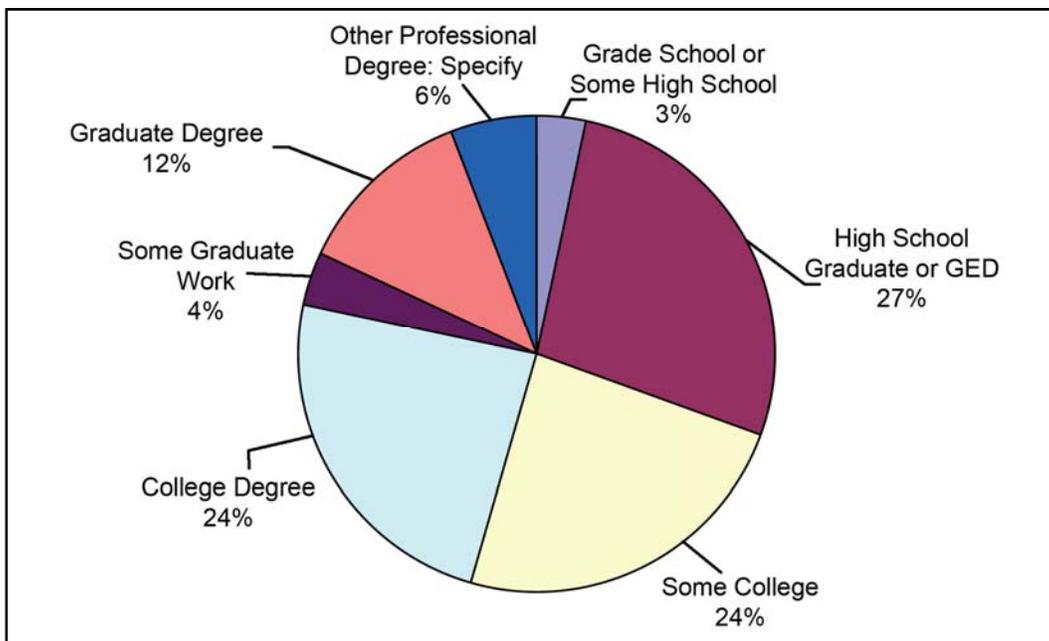


Figure 4. Education of community dock owners at Table Rock Lake, 1999 (N=381).

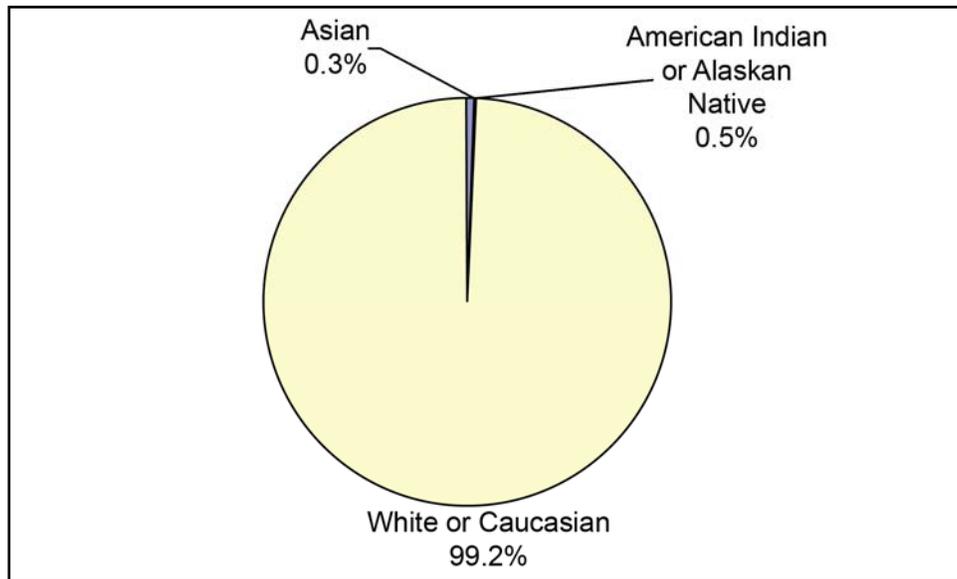


Figure 5. Race of community dock owners at Table Rock Lake, 1999 (N=388) (about 1 percent were Hispanic or of Latino origin)

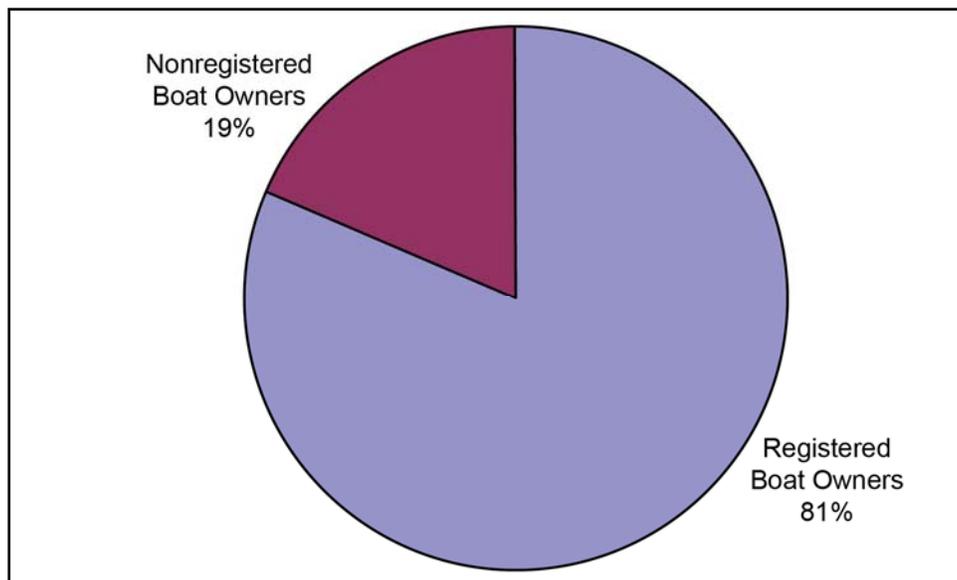


Figure 6. Surveys conducted with registered boat owners at Table Rock Lake community docks, 1999 (N = 388).

Many owners of community docks reported high household incomes with no or few children living in the household. Forty-nine percent of the respondents had annual household incomes of at least \$60,000, with 32 percent reporting incomes of over \$80,000 (Figure 7). More than two-thirds of the dock owners lived in a household with two or less people and 80 percent of the owners did not have any children under age 18 in their

households (Figures 8 and 9). The average number of individuals per household was 2.5. The most frequent household size (mode) was 2.

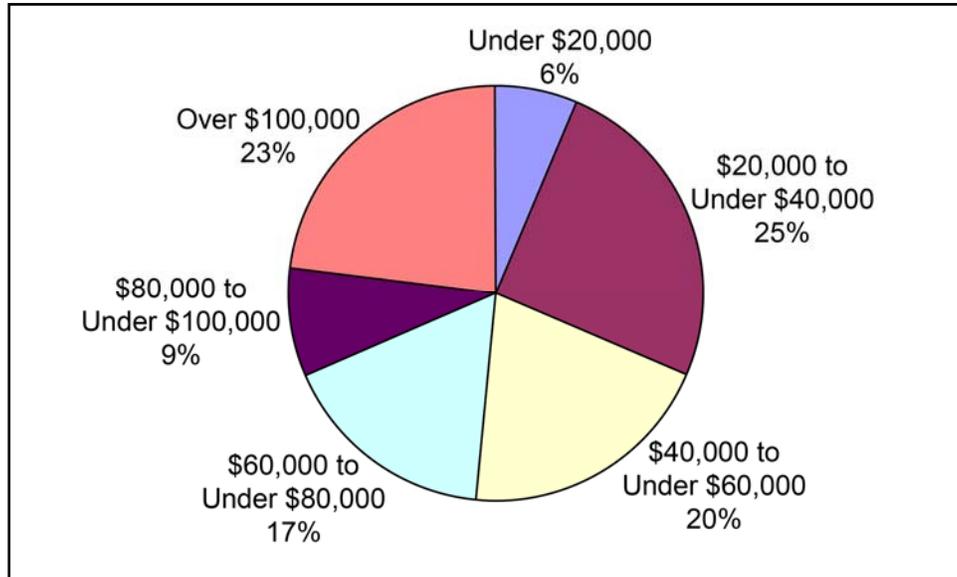


Figure 7. Household income of community dock owners at Table Rock Lake, 1999 (N=346).

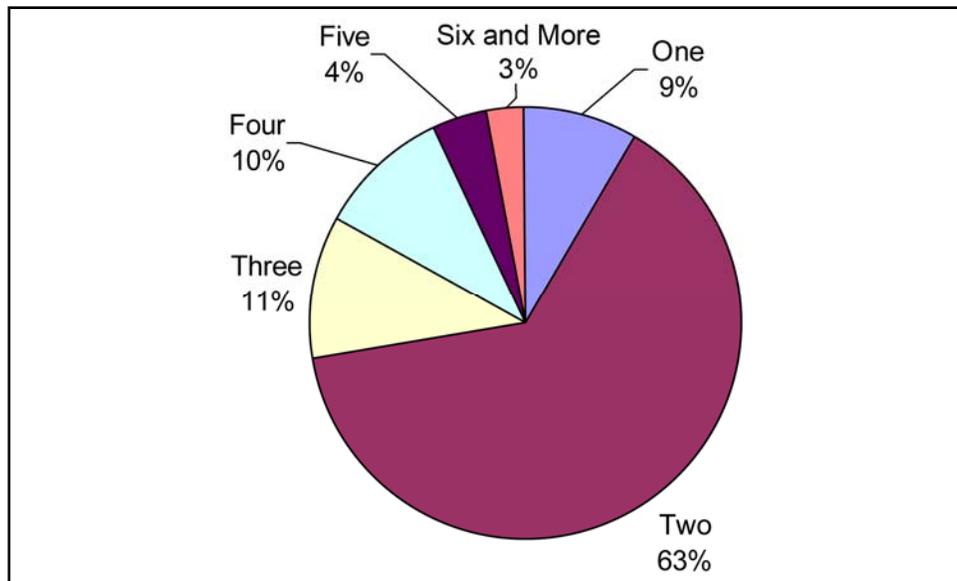


Figure 8. Household size of community dock owners at Table Rock Lake, 1999 (N=392).

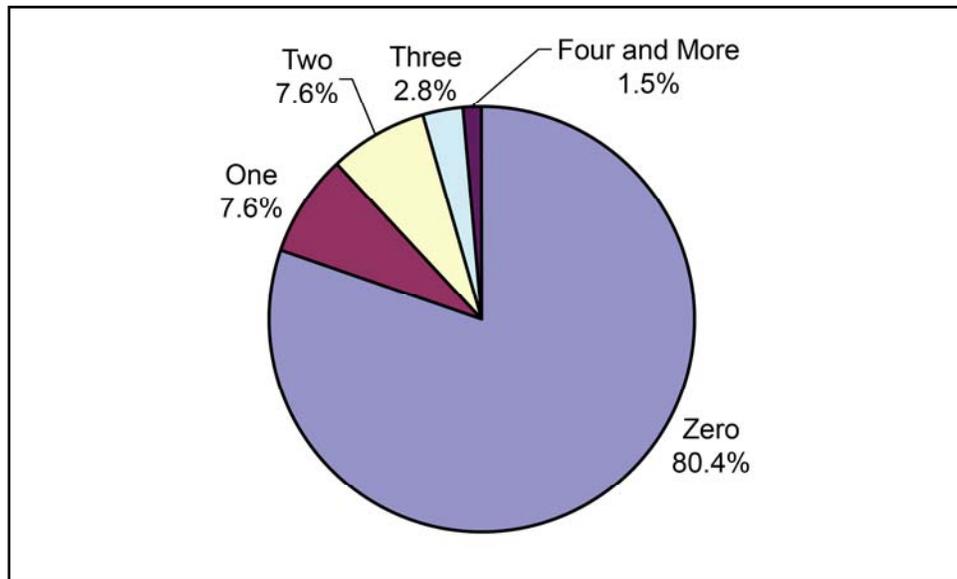


Figure 9. Number of people under 18 in households of community dock owners at Table Rock Lake, 1999 (N=393).

The permanent residences of 64 percent of the community dock owners were within 30 miles of the community dock (Figure 10). The average distance from the dock owner's permanent home to the community dock was 68 miles. Forty-one percent of the community dock owners owned a seasonal home within 30 miles of the dock (Figure 11).

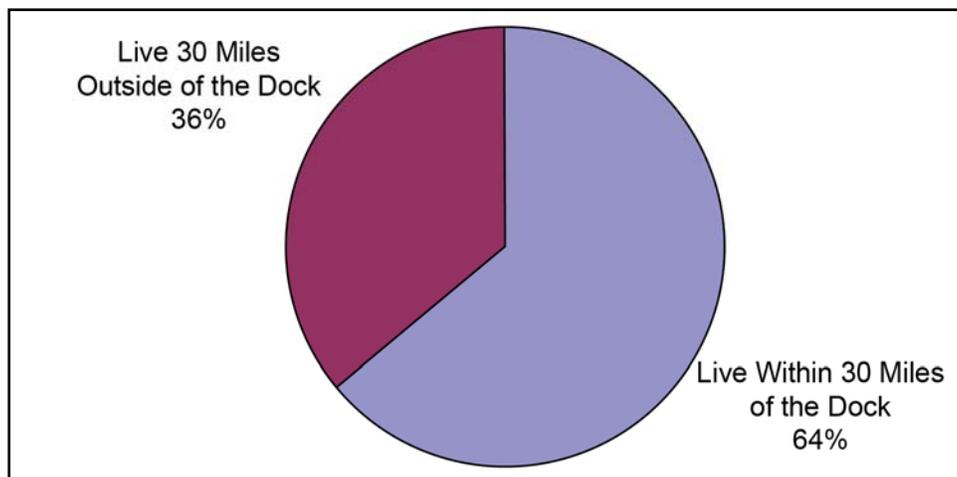


Figure 10. Permanent residence of community dock owners at Table Rock Lake, 1999 (N=394).

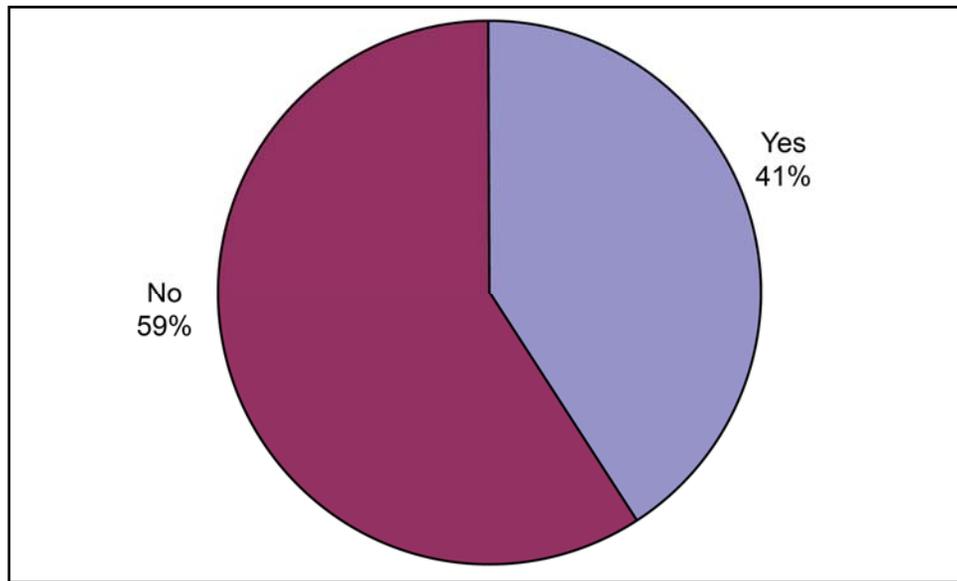


Figure 11. Seasonal home ownership of community dock owners at Table Rock Lake, 1999 (N=394).

Boating characteristics

Respondents had been boating on Table Rock Lake for an average of 18 years (range = 84 years). On average, they and their guests (owners/users) took 57.3 boating trips the previous year from September 1, 1998 to August 31, 1999.¹ Half of them made 25 or fewer trips and 25 percent made 60 or more trips in the same period (Table 3). The majority of trips were taken in the summer (22 trips), followed by spring (14 trips). On average, the fewest number of trips were made in the winter (about 7 trips per dock owner). When asked to compare the number of boating trips made last year to the previous three years, 72 percent of the dock owners felt that they had made about the same number of boating trips. Eleven percent said they had taken more trips last year than in the previous three years, and 17 percent said they had taken fewer trips (Figure 12).

¹ Sixty-four percent of the sampled dock users had permanent residences within 30 miles of the community dock. Therefore, a large proportion of trips are local in origin.

Table 3. Number of trips to Table Rock Lake community boat docks the previous year (09/01/1998 to 08/31/1999).

	Average	Std. Error	Minimum	Maximum	Percentiles			N
					25%	50%	75%	
Total number of trips	57.27	4.28	0	365	10	25	60	366
Trips made in fall	11.66	1.06	0	100	2	5	10	349
Trips made in winter	6.68	0.87	0	100	0	1	5	349
Trips made in spring	13.75	1.16	0	125	2	5	13	347
Trips made in summer	21.80	1.76	0	180	3	10	24	348

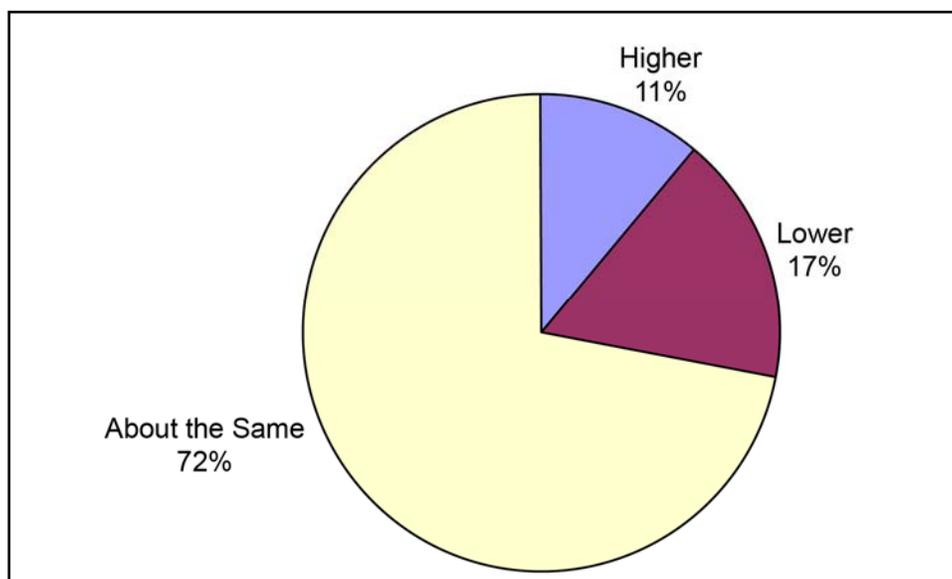


Figure 12. Number of boating trips made by community dock owners last year compared to previous three-year average at Table Rock Lake, 1999 (N=353).

Activities while boating

During their boating trips the previous year, community dock owners/users fished from their boat during 39.4 percent of their trips for an average of 23 times across the year (Table 4). Other activities they participated in included swimming (on 37.3 percent of their boating trips), water skiing (15.9 percent), and picnicking (12.9 percent). The participation rates for scuba diving, camping, and hunting were all less than 2 percent of the total boating trips. Thirty-three percent of the owners/users of community docks reported participating in other activities that were not mentioned during the telephone interviews (Figure 13). On average, dock owners/users participated in other activities nine times during 15 percent of their boating trips the previous year (Table 4). The most frequent other activities were

socializing/partying (beer) (9 percent of respondents), sightseeing (6 percent), tubing or wave running (4 percent), and cruising/touring the lake for pleasure (3 percent) (Figure 13).

Table 4. Recreation activity participation during previous year's trips to Table Rock Lake community boat docks (09/01/1998 to 08/31/1999).

Activity	Mean ¹	Percent of Total trips ²	Std. Error of Mean	Minimum	Maximum	N
Boating	34.81	60.77%	2.86	0	365	346
Swimming	21.36	37.29%	2.00	0	365	349
Picnicking	7.39	12.91%	1.06	0	206	350
Fishing from boat	22.58	39.43%	2.43	0	365	349
Water skiing	9.10	15.89%	0.97	0	122	353
Camping	0.58	1.02%	0.30	0	100	354
Hiking	2.94	5.13%	0.59	0	90	354
Fishing from shore	5.54	9.67%	0.85	0	120	348
Scuba diving	0.42	0.73%	0.13	0	30	354
Hunting	0.22	0.38%	0.09	0	25	354
Other activities	8.84	15.44%	1.56	0	275	347

¹ Times participated in listed activity during previous year's boating trip.

² Times participated in the listed activity divided by total number of boating trips made the previous year.

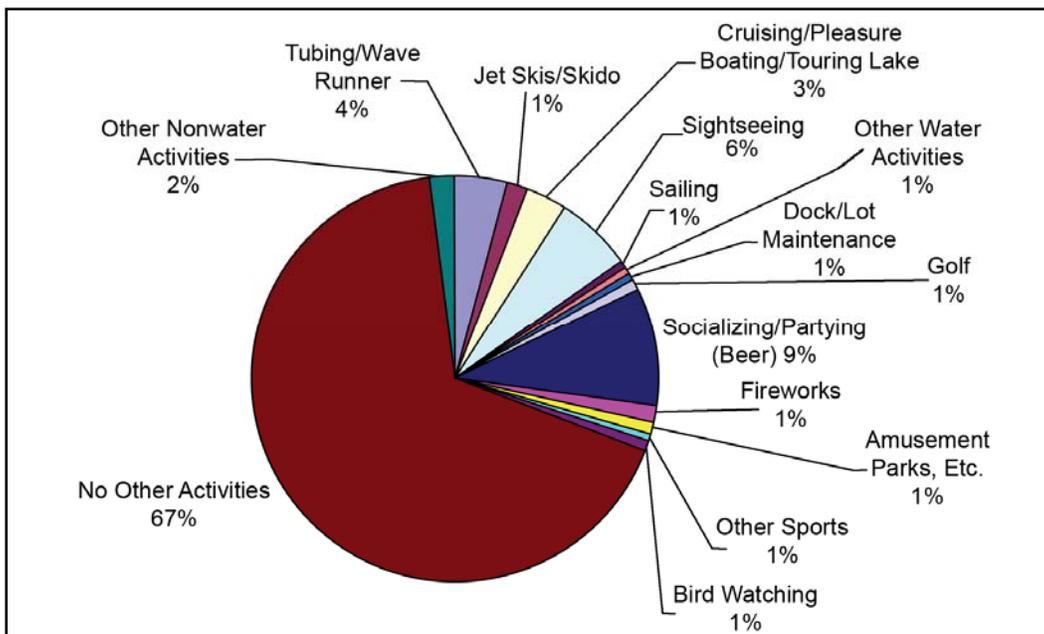


Figure 13. "What other activities did you or others participate in during your boating trips last year that I have not already mentioned?" (from Table Rock Lake community docks, 1999, N=349).

Type of boat and motor

Seventy percent of the boats surveyed at Table Rock Lake community-owned docks were 20 ft and under, with a minimum of 5 ft (Table 5). Twenty-nine percent were 21 to 30 ft long, and just over 1 percent were 31 ft and larger, with a maximum of 52 ft. Open boats tended to be less than 20 ft while cabin cruisers and pontoon boats were mostly 21 to 30 ft.

Table 5. Boat type and length cross-tabulation, Table Rock Lake community dock owner survey, 1999 (N = 363).

Boat Length	Boat Type						Total
	Open	Cabin	Sailboat	Pontoon	House	PWC	
20' and smaller	54.55%	1.10%	1.38%	8.82%	0.83%	3.03%	69.70%
21' to 30'	12.95%	3.31%	0.00%	12.67%	0.28%	0.00%	29.20%
31' and larger	0.00%	0.00%	0.00%	0.00%	1.10%	0.00%	1.10%
Total	67.49%	4.41%	1.38%	21.49%	2.20%	3.03%	100.00%

Seventy percent of the boats at the community-owned docks, across all type categories, did not have inboard motors (Table 6). In general, the smallest boats (20 ft and below) had the greatest percentage of outboard motors (Table 7).

Table 6. Boat type and motor cross-tabulation, Table Rock Lake community dock owner survey, 1999 (N = 354).

Inboard Motor	Boat Type						Total
	Open	Cabin	Sailboat	Pontoon	House	PWC	
With	22.03%	3.11%	0.00%	1.13%	1.13%	2.82%	30.23%
Without	45.48%	1.41%	1.13%	20.06%	0.85%	0.85%	69.77%
Total	67.51%	4.52%	1.13%	21.19%	1.98%	3.67%	100.00%

Table 7. Boat length and motor cross-tabulation, Table Rock Lake community dock owner survey, 1999 (N = 350).

Inboard Motor	Boat Length			
	20' and Smaller	21' to 30'	31' and Larger	
With	19.43%	10.00%	0.86%	30.29%
Without	50.00%	19.43%	0.29%	69.71%
Total	69.43%	29.43%	1.14%	100.00%

Dock user segments and spending

Spending averages were estimated for all of Table Rock Lake's community-owned dock users (Table 8) and for two different segments based on length of stay (Table 9) and boat length (Table 10). Dividing visitors into segments helps explain differences in spending across distinct user groups. It gives managers the opportunity to apply these distinct spending profiles to project level use data. The two types of segments that fulfilled these purposes were: day user versus overnight stay segments and segments based on length of the boat.

Average spending for full sample of community dock owners

Users of community-owned docks averaged \$189 in trip expenses associated with their last boating trip (for a party of 3.6 people). Dock users stayed away from home an average of 1.7 nights and used their boat 1.9 days during their last trip (Table 8). Eighty-four percent (\$158) of spending occurred within 30 miles of their boat dock. Of the expenditures made within 30 miles of the community dock, users spent the most on restaurant meals (\$33 per party trip), followed by groceries (\$31), gas and oil for their boat (\$28), and other supplies (\$13). A refined average of 57.4 boating trips were made from each slip in a community-owned dock during the previous year.

A community dock is permitted under a shoreline use permit. The applicant is charged a \$30 fee for a five-year permit which includes a \$10 administration charge and a \$5 annual inspection fee. Other storage fees that are identified in annual spending do not include the permit fee but relate to additional spending that may be paid by the end user, for example, in off-site storage when the craft is not in the water.

Community dock owners spent an average of \$28 on storage fees, \$235 on insurance, \$212 on boat repair and maintenance, and \$340 on their share of dock repair and maintenance (Table 8). The average cost of the boat was \$13,906 (1999 dollars). The lowest boat cost was \$306 and the highest was \$85,000.

When asked to compare the amount spent on their most recent trip to prior similar trips, 78 percent of the dock owners felt that they had made about the same expenditures. Twelve percent said they had spent more on the most recent trip than on similar trips in the past 12 months, and 10 percent said they had spent less (Figure 14).

Table 8. Summary of Table Rock Lake community dock owners'/users' spending and use profiles, 09/1998 to 08/1999 (spending per party trip).

Spending Categories	Mean	Std. Error	Pct. Error ¹	N	Minimum	Maximum	Pct. zeroes	Mean exc. zero
Spending Information for Last Trip								
Gas/oil auto	\$12.01	\$1.50	13%	387	\$0	\$300	63%	\$32.74
Other expenses auto	\$2.25	\$1.27	56%	386	\$0	\$460	96%	\$51.18
Gas/oil boat	\$28.45	\$2.03	7%	375	\$0	\$300	13%	\$32.52
Other expenses boat	\$9.70	\$3.05	31%	379	\$0	\$750	91%	\$102.17
Food/drink restaurants	\$33.32	\$3.22	10%	383	\$0	\$500	54%	\$72.91
Groceries	\$30.68	\$2.73	9%	382	\$0	\$478	48%	\$59.18
Campground fees	\$0.75	\$0.39	51%	382	\$0	\$128	98%	\$40.86
Lodging	\$5.35	\$1.96	37%	382	\$0	\$500	97%	\$157.23
Recreation fees	\$12.07	\$2.66	22%	383	\$0	\$630	88%	\$100.52
Sporting goods	\$10.71	\$2.42	23%	383	\$0	\$500	85%	\$69.53
Other supplies	\$12.98	\$1.98	15%	384	\$0	\$325	66%	\$38.35
Total within 30 miles	\$158.27							
Expenses for 30+ miles ²	\$30.86	\$3.93	13%	368	\$0.00	\$835.00	63%	
Total trip spending	\$189.13							
Pct. of local spending (within 30 miles)	83.68%							
Use Information for Last Trip								
Nights away from home	1.69	0.17	10%	387	0	30		
Days used boat	1.92	0.10	5%	360	1	16		
Number of people on boat	3.62	0.12	3%	359	1	21		
Annual Spending for Last Year (09/01/98 - 08/31/99)								
Storage fees	\$27.50	\$9.53	35%	344	\$0	\$3,000		
Insurance payments	\$235.30	\$10.46	4%	296	\$0	\$1,500		
Boat repair/maintenance	\$212.01	\$30.79	15%	340	\$0	\$6,000		
Dock maintenance/repair	\$340.30	\$36.52	11%	347	\$0	\$6,500		
Use Information for Last Year (09/01/98 - 08/31/99)								
Number of trips using boat	57.42	4.29	7%	365	0	365		
Cost of the Boat (in 1999 dollars)	\$13,906.45	\$573.93	4%	317	\$305.65	\$85,000		
¹ Pct. Error = Std. Error / Mean. Two standard errors yield a 95% confidence interval. ² Expenses outside 30 miles of the community dock on last trip.								

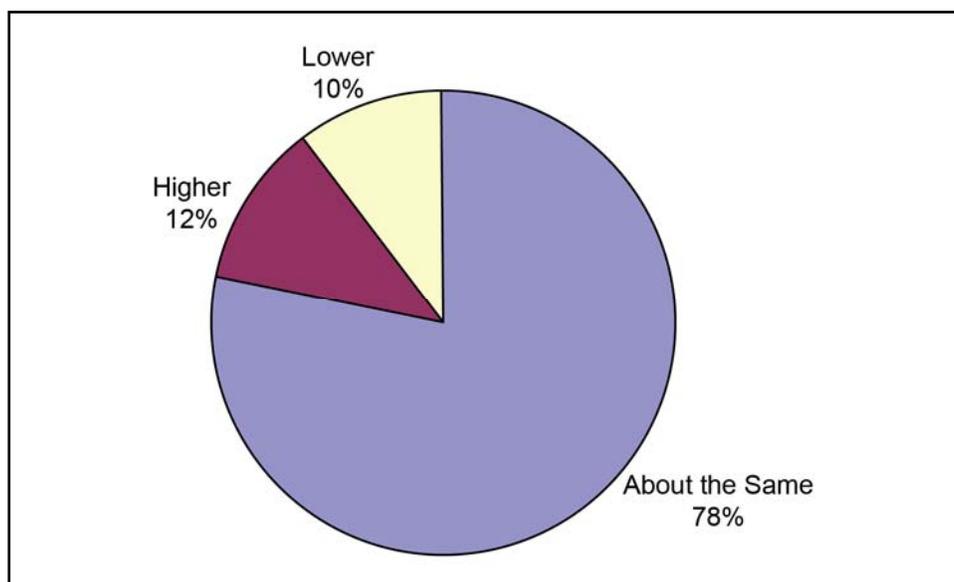


Figure 14. Expenditures by community dock owners/users on most recent trip compared to similar trips in the last 12 months at Table Rock Lake, 1999, (N=372).

Many of the respondents reported no spending on their last trip in many of the spending categories listed. Categories in which a large percentage (more than 80 percent) of users did not spend money on their last trip were: campground fees (98 percent), lodging (97 percent) other expenses on auto (96 percent), other expenses on boat (91 percent), recreation fees (88 percent), and sporting goods (85 percent). Although the estimates of average trip expenditures in this report are based on the full sample, it is worthwhile to recognize the difference between the average spending of all community dock users and the average spending of just the spenders. The average spending of those who spent something on an item is generally much higher than the average computed from all visitors. For instance, while the average across all community dock users was \$5.35 on lodging per party trip, the dock parties who did spend money on lodging spent an average of \$157 per party trip (Table 8). For estimating total spending of all Table Rock Lake community dock users, it is appropriate to apply the means that include zeros. The means without zeros should not be used to expand the data to population totals, as they represent spending for specific segments only (i.e., dock users who stayed at lodging facilities spent an average of \$157 per trip).

Average spending by segment: Day use vs. overnight

Table Rock community dock owners were grouped into two segments based on whether or not they stayed overnight away from their permanent

home during their last trip. The dock owners/users who did not stay away from home (i.e., day users) spent an average of \$81 for that trip, 93 percent of which (\$76) was spent within 30 miles of the boat dock (Table 9). The average party size was 3.5 people per trip. The dock owners/users who stayed overnight spent an average of 4.2 nights away from home and used the boat for 3.2 days with a party size of 4 people per trip. They spent an average \$346 for the entire trip, 80 percent of which (\$279) was spent within 30 miles of the boat dock. Day users made an average of 80 boating trips in the previous year, whereas overnights made 27 trips.

Community dock owners in the overnight segment owned more expensive boats than day users (\$16,695 vs. \$12,026, respectively). The overnight segment of dock owners also paid more annually for insurance, dock maintenance, boat repair, and storage than day users.

Day users comprised 59 percent of the sample of community dock users, while 41 percent spent at least one night in the area on their last trip. In terms of total spending in the local region, day users of community docks contributed 54 percent and overnight stay dock users, 46 percent.

Average spending by boat length segments

Based on the length of the boat, the community dock owners were grouped into three segments: boats that were 20 ft and shorter, boats between 21 and 30 ft, and boats 31 ft and longer. The 20-ft and smaller segment spent an average of \$183 per party on the last trip during which about 82 percent (\$150) was spent within 30 miles of the boat dock (Table 10). They stayed an average of 1.7 nights away from home and used their boat for 1.9 days with a party size of 3.3 people per trip. Dock owners/users in this segment made an average of 55 boating trips the previous year.

The 21- to 30-ft boat segment spent an average of \$212 per party on the last trip (\$186 within 30 miles of the boat dock). They stayed an average of 1.6 nights away from home, used their boat for 1.9 days with a party size of 4.3 people per trip. They made an average of 74 boating trips the previous year.

Table 9. Spending and use by length of stay segments, Table Rock Lake community dock owner survey, 09/1998 to 08/1999 (spending per party trip).

Spending Categories	Day Users				Overnight Users			
	Mean	Std. Error	Pct. Error ¹	N	Mean	Std. Error	Pct. Error ¹	N
Per Party Trip Spending								
Gas/oil auto	\$2.06	\$0.49	24%	222	\$26.50	\$3.30	12%	158
Other expenses auto	\$0.21	\$0.12	58%	223	\$5.28	\$3.12	59%	156
Gas/oil boat	\$19.55	\$2.44	12%	213	\$41.20	\$3.31	8%	156
Other expenses boat	\$10.63	\$4.69	44%	217	\$8.79	\$3.54	40%	156
Restaurants	\$13.08	\$2.06	16%	221	\$62.61	\$6.65	11%	157
Groceries	\$9.69	\$1.91	20%	222	\$60.92	\$5.27	9%	155
Campground fees	\$0.00	—	—	221	\$1.64	\$0.92	56%	156
Lodging	\$0.00	—	—	221	\$13.10	\$4.74	36%	156
Recreation fees	\$2.48	\$1.21	49%	221	\$25.97	\$6.11	24%	157
Sporting goods	\$9.84	\$3.53	36%	221	\$12.28	\$3.20	26%	157
Other supplies	\$8.06	\$2.42	30%	222	\$20.29	\$3.33	16%	157
Total within 30 miles	\$75.59				\$278.58			
Expenses 30+ miles ²	\$5.56	\$1.60	29%	214	\$67.53	\$8.59	13%	149
Total trip spending	\$81.15				\$346.11			
Pct. of local spending (within 30 miles)	93%				80%			
Annual Spending								
Storage fees	\$13.73	\$4.92	36%	201	\$48.91	\$22.73	46%	137
Insurance payments	\$209.42	\$13.14	6%	168	\$272.89	\$17.11	6%	123
Boat repair/maintenance	\$176.94	\$33.59	19%	198	\$271.49	\$59.16	22%	136
Dock maintenance/repair	\$331.77	\$53.98	16%	200	\$356.29	\$47.34	13%	140
Cost of the Boat (in 1999 dollars)	\$12,026.25	\$725.34	6%	183	\$16,695.26	\$915.26	5%	128
Visitor Characteristics								
Total trips using boat (last year)	79.59	6.81	9%	205	26.74	2.58	10%	154
Nights away from home (last trip)	0.00	—	—	229	4.15	0.33	8%	158
Days used boat (last trip)	1.00	—	—	210	3.23	0.20	6%	148
People on boat (last trip)	3.47	0.16	5%	208	3.86	0.21	5%	146
¹ Pct. Error = Std. Error/Mean. Two standard errors yield a 95% confidence interval. ² Expenses outside 30 miles of the community dock on last trip.								

Table 10. Spending and use by boat length segments, Table Rock Lake community dock owner survey, 09/1998 to 08/1999, (spending per party trip).

Spending Categories	20' and Smaller				21' to 30'				31' and Larger			
	Mean	Std. Error	Pct. Error ¹	N	Mean	Std. Error	Pct. Error ¹	N	Mean	Std. Error	Pct. Error ¹	N
Per Party Trip Spending												
Gas/oil auto	\$11.67	\$1.73	15%	249	\$12.49	\$3.24	26%	103	\$16.25	\$4.73	29%	4
Other expenses auto	\$3.07	\$1.96	64%	248	\$1.05	\$0.49	47%	103	\$0.00	\$0.00	0%	4
Gas/oil boat	\$24.48	\$2.26	9%	241	\$41.74	\$4.69	11%	104	\$46.25	\$19.30	42%	4
Other expenses boat	\$11.84	\$4.51	38%	245	\$7.16	\$3.33	46%	103	\$0.00	\$0.00	0%	4
Restaurants	\$30.77	\$3.93	13%	248	\$36.19	\$5.97	17%	103	\$112.50	\$51.54	46%	4
Groceries	\$28.94	\$3.12	11%	249	\$38.94	\$6.67	17%	101	\$60.00	\$14.72	25%	4
Campground fees	\$0.78	\$0.54	70%	248	\$0.90	\$0.58	64%	102	\$0.00	\$0.00	0%	4
Lodging	\$5.20	\$2.66	51%	248	\$3.63	\$2.73	75%	102	\$0.00	\$0.00	0%	4
Recreation fees	\$9.32	\$2.20	24%	249	\$17.44	\$8.05	46%	102	\$30.00	\$30.00	100%	4
Sporting goods	\$11.63	\$3.06	26%	248	\$10.89	\$5.13	47%	103	\$12.50	\$12.50	100%	4
Other supplies	\$12.59	\$2.43	19%	249	\$15.43	\$4.29	28%	103	\$8.00	\$4.55	57%	4
Total within 30 miles	\$150.31				\$185.86				\$285.50			
Expenses 30+ miles ²	\$32.28	\$5.44	17%	243	\$25.81	\$5.29	20%	95	\$82.50	\$27.80	34%	4
Total trip spending	\$182.59				\$211.67				\$368.00			
Pct. of local spending (within 30 miles)	82%				88%				78%			
Annual Spending												
Storage fees	\$16.30	\$4.01	25%	234	\$55.34	\$30.70	55%	102	\$0.00	\$0.00	0%	4
Insurance payments	\$226.63	\$13.25	6%	198	\$253.58	\$16.55	7%	93	\$398.00	\$151.01	38%	3
Boat repair/maintenance	\$186.81	\$36.10	19%	233	\$253.29	\$59.61	24%	99	\$370.00	\$217.14	59%	4
Dock maintenance/repair	\$288.32	\$31.98	11%	219	\$518.30	\$104.13	20%	99	\$440.00	\$183.30	42%	3
Cost of the boat (in 1999 dollars)	\$11,261.24	\$526.03	5%	216	\$19,052.52	\$1,272.56	7%	95	\$33,240.66	\$3,517.72	11%	4
Visitor Characteristics												
Total trips using boat (last year)	55.19	5.26	10%	237	73.54	9.22	13%	97	26.75	9.07	34%	4
Nights away from home (last trip)	1.73	0.22	13%	248	1.61	0.26	16%	105	2.25	0.25	11%	4
Days used boat (last trip)	1.94	0.13	7%	247	1.88	0.17	9%	104	2.25	0.25	11%	4
People on boat (last trip)	3.30	0.15	5%	245	4.34	0.22	5%	105	5.00	1.22	24%	4
¹ Pct. Error = Std. Error/Mean. Two standard errors yield a 95% confidence interval. ² Expenses outside 30 miles of the community dock on last trip.												

Community dock owners/users in the largest boat size segment averaged \$368 per party on goods and services during their last trip (\$286 of the money was spent locally). They stayed away from home an average of two nights and used the boat for two days per trip. The average party size for this group was 5 people per trip. Dock users in this segment made an average of 27 boating trips the previous year. Due to the low number (4) of respondents for this boat length category, these results may not be reliable.

In general, the larger the boat, the more community dock owners spent on annual expenses.¹ Storage fees ranged from \$16 for boats 20 ft and shorter to \$55 for boats 21 to 30 ft in length. The cost of the boat ranged from \$11,261 for the 20 ft and shorter segment to \$19,053 for the 21- to 30-ft segment, while the insurance payments ranged from \$227 to \$254. Boat repair and maintenance costs similarly grew from \$187 to \$253 per year as boat size increased (Table 10).

Nearly 70 percent of the sample had small-sized boats (20 ft and smaller), while 29 percent were medium (21 to 30 ft) and roughly 1 percent were large (above 31 ft). Dock users with small length boats contributed 59 percent of total spending locally, and those with medium boats contributed 40 percent. Users of largest boats contributed the remaining 1 percent.

Total spending

The figures in Table 11 were derived from secondary data sources, the Natural Resource Management System (NRMS) (USACE 2006c), and from survey data for Table Rock (e.g., average number of trips per household last year). Applying these figures, Table Rock dock users took 321,477 boating party trips in 1999 (19 percent of total recreation use²), and purchased 181 new boats.

¹ Due to the low number of responses, the 31 ft and longer category was excluded from these findings.

² 5.2 million recreation visits in 1999 from Table 1 divided by an average party size of 3.0 from Propst et al. (1998) equals 1.7 million total party trips; 321,477 is 19 percent of 1.7 million party trips.

Table 11. Total annual use figures for community dock owner survey at Table Rock Lake (1999).

Category	Total Use	Computation Procedures
Number of docks	1056	From NRMS (1999)
Number of boats	7746	From NRMS (1999)
Average number of boats per household	1.38	From this survey
Number of households	5613	Total number of boats divided by average number of boats per household
Number of party trips	321,477	Total party trips (from Table 3) times total number of households (Reference Foreword)
Percent of new boats purchased last year	3.22%	Computed from survey results, using the three-year average (1997 to 1999)
Number of new boats purchased last year	181	Total households times percent of new boats purchased last year

Local and total trip-related spending (Tables 12 and 13) is calculated by multiplying the number of party-trips in Table 11 (321,477) by the trip spending averages in Table 8. Total spending on boats and fixed, annual goods and services (Table 14) is estimated by multiplying the number of households in Table 11 (5613) by the annual expenditures on boats, dock maintenance, and storage in Table 8. Total spending on insurance is estimated by multiplying the number of boats (7,746) by the proportion of local boat dock owners who purchased boat insurance and the average insurance payment. Total spending on purchasing new boats is estimated by multiplying the number of new boats purchased last year (181) by the proportion of local dock owners who bought new boats and the average local new boat cost for three years: 1997-1999.

A recreation visit, as reported in the NRMS database, is one person entering a Corps project. Spending depends on how long a person stays in the local region rather than how many times they enter the project or how much time they spend in recreation activities while there. Recreation visits are therefore converted to party trips¹ in the region before applying spending averages. This procedure avoids double-counting the spending of community dock users who may enter the project multiple times on the same

¹ See Table 11 for the conversion steps. A party is a travel group staying in the area (within 30 miles of the dock). The travel group is usually all individuals in the same vehicle or on the same boat or staying in the same room or campsite. During the interviews, community dock users were asked to report expenditures for their entire party for the last trip. Thus, the units for expenditures are party trips. Converting visits to party trips assures that the units are the same in the multiplication steps that lead to estimates of total expenditures (visits in party trips times expenditures in party trips).

day and also takes into account additional days a dock user may spend in the area outside the project.

The estimated trip spending for all Table Rock community dock users in 1999 was \$50.9 million spent within the local region (Table 12). If trip spending outside 30 miles is included, the total rises to \$60.8 million (Table 13). Only trip spending within 30 miles of the boat dock (\$50.88 million) should be included when conducting economic impact analysis at the project level (multi-county region).

Table 12. Total trip spending in local area¹ by Table Rock Lake community dock owners/users (1999).

Spending Category	Spending (\$MM)
Gas/oil auto	\$3.86
Other expenses auto	\$0.72
Gas/oil boat	\$9.14
Other expenses boat	\$3.12
Food/drink restaurants	\$10.71
Groceries	\$9.86
Campground fees	\$0.24
Lodging	\$1.72
Recreation fees	\$3.88
Sporting goods	\$3.44
Other supplies	\$4.17
Total trip spending	\$50.88
¹ Local trip spending equals spending within 30 miles of the dock.	

Fixed, annual goods and services related to boating activities in this study were new boats, dock repairs and maintenance, storage fees, insurance, and boat repairs and maintenance. Table Rock's community dock owners spent \$5.8 million (1999 dollars) on boating-related annual goods and services (Table 14). Thirty-three percent of the money was spent on dock maintenance and repair (\$1.9 million), followed by purchases of new boats (\$1.5 million), boat repair and maintenance (\$1.2 million), and insurance payments (\$1.1 million).

Table 13. Total trip spending¹ by Table Rock Lake community dock owners/users (1999).

Spending Category	Spending (\$MM) ²
Gas/oil auto	\$4.85
Other expenses auto	\$0.91
Gas/oil boat	\$9.14
Other expenses boat	\$3.12
Food/drink restaurants	\$13.46
Groceries	\$12.39
Campground fees	\$0.30
Lodging	\$2.16
Recreation fees	\$4.88
Sporting goods	\$4.33
Other supplies	\$5.25
Total trip spending	\$60.80
<p>¹ Total trip spending equals spending within and outside 30 miles of the dock.</p> <p>² Dock owners were asked to report trip spending outside 30 miles of the community dock as one total amount, not broken down by item as this table shows. This aggregate spending figure was then proportionally distributed into all but two categories based on the spending proportions within 30 miles. Proportional allocations were not made to the "gas/oil boat" and "other expenses boat" categories. It was assumed that, for these two categories, there were no boating expenditures outside 30 miles of the community dock.</p>	

Table 14. Total spending on fixed, annual goods and services by community dock owners at Table Rock Lake (1999).

Spending Category	Spending (\$MM)
Storage fees	\$0.15
Insurance payments (include only payments from boat dock owners who lived within 30 miles of the community dock)	\$1.08
Boat repair/maintenance	\$1.19
Dock maintenance/repair	\$1.91
Purchases of new boats (within 30 miles)	\$1.48
Total durable goods spending	\$5.81

Economic impacts of community dock user spending

1999 impacts

The \$50.88 million in trip-related spending from Table 12 had a direct economic impact on the region of \$30.6 million in direct sales, \$11.8 million in personal income (wages and salaries), and supported 711 jobs in the

region (Table 15). The eating and drinking (restaurants and bars) sector received the largest amount of direct sales (\$10.7 million) followed by the retail sector (\$7.4 million).

Direct effects are less than total spending, as only the retail and wholesale margins on visitor purchases of goods accrue to the local economy. The local region surrounding Table Rock Lake captures 60 percent of dock user spending. Forty percent leaks out of the local economy to cover the costs of imported goods bought by visitors.¹

The sales multiplier² for the region is 1.51, meaning that an additional \$0.51 in sales is generated through secondary effects for every dollar of direct sales. Secondary effects generate an additional 229 jobs, for a total of 940 direct and secondary jobs (Table 15). Likewise, secondary effects generate an additional \$5.1 million in personal income and \$8.9 million in value added (personal income + proprietor's income + indirect business tax). Roughly 14 direct jobs are supported by each million dollars in total dock user spending. Including multiplier effects, each million dollars in total dock user spending supports about 18 jobs.

The \$5.8 million in spending on new boats, storage fees, insurance, and repairs/maintenance from Table 14 had a direct economic impact on the region of \$3.6 million in direct sales, \$670,000 in personal income (wages and salaries), and supported 32 direct jobs in the region (Table 16). The other services sector received the largest amount of direct sales (\$2.2 million), followed by other manufacturing (\$1 million).

Direct effects only accrue to the industries where dock owner spending is directly received. For example, since no money is spent in the Lodging sector from dock owner annual or durable goods spending, that cell is blank in the top sector of Table 16 (direct effects). However, other companies receiving direct payments, e.g., insurance companies, may hire employees who live in the region and spend money in the local Lodging sector. Since this is a multiplier (secondary) effect upon the Lodging sector, some amount of sales appears in the Lodging cell in the Total Effects sector of Table 16.

¹ For example, if a visitor buys \$50 worth of clothing that is not manufactured in the local region, only the local margins (retail and locally operated wholesale and transportation), say, \$30, will be captured by the local economy as direct sales. The remaining \$20 will leak immediately outside the local economy to cover the producer price (or price of good at the factory), and non-local margins (wholesale and transportation).

² Multipliers for the 6-county region are from a 2000 input-output model estimated with the IMPLAN system.

Table 15. Regional economic impacts of Table Rock Lake community dock owners'/users' trip spending (1999, for trip spending within 30 miles only)

SUMMARY RESULTS TABLE IMPACTS ON LOCAL ECONOMY				
Economic measure		DIRECT	Multiplier	TOTAL
Output/Sales (\$MM)		\$30.55	1.51	\$46.09
Total Income (\$MM)		\$11.77	0.55	\$16.89
Total Value added (\$MM)		\$17.74	0.87	\$26.65
Jobs		711.22	30.78	940.13
Total Visitor Spending (\$MM)		50.88		
Capture rate		60%		
Effective spending multiplier		0.91		
Direct Effects				
Sector	Sales (\$MM)	Income (\$MM)	Value Added (\$MM)	Jobs
Lodging	\$1.96	\$0.76	\$1.18	39.98
Eat & drink	\$10.71	\$4.02	\$5.68	305.77
Amusement and recreation	\$3.09	\$1.32	\$1.98	85.12
Retail	\$7.43	\$3.60	\$5.87	198.23
Wholesale	\$1.85	\$0.76	\$1.26	25.62
Other services	\$2.07	\$0.56	\$0.78	26.24
Groceries	\$0.66	\$0.11	\$0.17	3.82
Sporting goods	\$0.37	\$0.09	\$0.16	2.89
Other manufacturing	\$2.35	\$0.53	\$0.64	23.24
Government	\$0.06	\$0.01	\$0.02	0.31
Total	\$30.55	\$11.77	\$17.74	711.22
Total Effects				
Sector	Sales (\$MM)	Income (\$MM)	Value Added (\$MM)	Jobs
Lodging	\$2.22	\$0.86	\$1.34	45.25
Eat & drink	\$11.37	\$4.27	\$6.03	324.57
Amusement and recreation	\$3.58	\$1.47	\$2.17	95.04
Retail	\$8.79	\$4.26	\$6.96	237.18
Wholesale	\$2.64	\$1.09	\$1.79	36.46
Other services	\$11.38	\$3.43	\$6.41	141.93
Groceries	\$1.23	\$0.20	\$0.29	6.61
Sporting goods	\$0.38	\$0.10	\$0.17	3.10
Other manufacturing	\$4.04	\$1.06	\$1.29	44.52
Government	\$0.46	\$0.17	\$0.21	5.47
Total	\$46.09	\$16.89	\$26.65	940.13

Table 16. Regional economic impacts of Table Rock Lake community dock owners' durable goods and annual spending (1999).

SUMMARY RESULTS TABLE IMPACTS ON LOCAL ECONOMY				
Economic Measure		DIRECT	Multiplier	TOTAL
Output/Sales (\$MM)		\$3.63	1.52	\$5.52
Total Income (\$MM)		\$0.67	0.35	\$1.26
Total Value added (\$MM)		\$0.98	0.53	\$1.92
Jobs		32.02	15.67	56.92
Total Visitor Spending (\$MM)		5.81		
Capture rate		63%		
Effective spending multiplier		0.95		
Direct Effects				
Sector	Sales (\$MM)	Income (\$MM)	Value Added (\$MM)	Jobs
Lodging	\$-	\$-	\$-	-
Eat & drink	\$-	\$-	\$-	-
Amusement and recreation	\$-	\$-	\$-	-
Retail	\$0.42	\$0.19	\$0.31	8.37
Wholesale	\$0.04	\$0.02	\$0.03	0.52
Other services	\$2.21	\$0.23	\$0.36	13.33
Groceries	\$-	\$-	\$-	-
Sporting goods	\$-	\$-	\$-	-
Other manufacturing	\$0.96	\$0.24	\$0.28	9.81
Government	\$0.00	\$0.00	\$0.00	0.00
Total	\$3.63	\$0.67	\$0.98	32.02
Total Effects				
Sector	Sales (\$MM)	Income (\$MM)	Value Added (\$MM)	Jobs
Lodging	\$0.02	\$0.01	\$0.01	0.41
Eat & drink	\$0.05	\$0.02	\$0.02	1.34
Amusement and recreation	\$0.03	\$0.01	\$0.01	0.52
Retail	\$0.52	\$0.24	\$0.39	11.26
Wholesale	\$0.11	\$0.05	\$0.08	1.55
Other services	\$3.59	\$0.64	\$1.04	29.54
Groceries	\$0.02	\$0.00	\$0.00	0.10
Sporting goods	\$0.00	\$0.00	\$0.00	0.00
Other manufacturing	\$1.14	\$0.29	\$0.34	11.78
Government	\$0.04	\$0.01	\$0.02	0.41
Total	\$5.52	\$1.26	\$1.92	56.92

The local region surrounding Table Rock Lake captures 63 percent of dock owner spending on new boats and annual services. Thirty-seven percent leaks out of the local economy to cover the costs of imported boats and services bought by visitors.

The sales multiplier for the region is 1.52, meaning that an additional \$0.52 in sales is generated through secondary effects for every dollar of direct sales. Secondary effects generate an additional 25 jobs, for a total of 57 direct and secondary jobs (Table 16). Likewise, secondary effects generate an additional \$600,000 in personal income and \$940,000 in value added (personal income + proprietor's income + indirect business tax). Roughly 5.5 direct jobs are supported by each million dollars in total community dock owner spending for new boats and annual services. Including multiplier effects, each million dollars in total dock owner spending supports about 10 jobs.

Value of 1999 impacts in 2004 dollars

The 1999 economic impacts reported above were adjusted to 2004 impacts by multiplying 1999 figures by an average consumer price index of 1.21 (U.S. Department of Labor 2006). The results are presented in Table 17.

Table 17. Regional economic impacts of Table Rock Lake community dock owners'/users' trip and owners' annual spending (in 2004 dollars, for spending within 30 miles only).

	Trip Spending (within 30 miles)		Durable Goods and Other Annual Costs Spent Locally	
	Direct Effects	Total Effects	Direct Effects	Total Effects
Total spending (\$MM)	\$61.57		\$7.03	
Output/sales (\$MM)	\$36.96	\$55.77	\$4.39	\$6.67
Total income (\$MM)	\$14.24	\$20.44	\$0.81	\$1.53
Total value added (\$MM)	\$21.46	\$32.25	\$1.18	\$2.32

Note: Spending and economic effects in this table are in 2004 dollars, as opposed to the 1999 dollars reported elsewhere in this report.

In 2004 dollars, total community dock user trip spending locally of \$61.6 million resulted in \$14.2 million in the region in personal income and \$21.5 million in value added (personal income + proprietor's income + indirect business tax). With secondary (multiplier) effects, total impacts locally were \$20.4 million in personal income and \$32.3 million in value added. There is no change to the number of direct jobs (743) in going from

Tables 15 and 16 to Table 17. This is because no new expenditures by dock users are being estimated in Table 17. Instead, expenditures from the 1999 survey are being inflated to 2004 dollars. Since there are no new expenditures, no additional jobs were created in 2004.

After converting annual goods and services to 2004 dollars, the results are \$7 million in community dock owner spending on new boats, storage fees, insurance, and repairs/maintenance. The impacts of annual spending include \$810,000 in personal income and \$1.2 million in value added. With secondary (multiplier) effects, total impacts locally were \$1.5 million in personal income and \$2.3 million in value added.

4 Study Limitations and Error

The accuracy of the estimates in this report rests on the three inputs: visits, spending averages, and multipliers. The number of trips reported by the sample of community dock owners and the number of boats at the docks are likely the largest potential sources of error.

The multipliers and economic ratios used to convert spending to jobs and income and to estimate secondary effects come from an IMPLAN model for the six-county region. Although it is difficult to estimate the levels of error, multipliers can vary by about 10 percent between different modeling systems. Multipliers largely influence estimates of secondary effects.

Depending on the direction and magnitude of errors in visits, spending, and multipliers, the different errors may compound or cancel each other. The most important potential errors are in the estimates of total trips. As the model is linear, doubling the amount of visitation will double spending and economic impacts.

In addition to these issues, there are also conceptual issues regarding how much and which spending may be claimed by the project. It is not simple to determine if users of community-owned docks would spend their money elsewhere if community docks were not available at Table Rock Lake. Furthermore, local visitors are usually excluded in estimating economic impacts, but have been included here. Since they are not a distinct segment, their contribution to the total effects is not readily estimated. However, 64 percent of the dock owners interviewed stated that their permanent residences were within 30 miles of the project. Since approximately 84 percent of total trip spending occurred within 30 miles of the project, the impact of local spending cannot be ignored.

Only new boat purchases within 30 miles of the project are counted in this analysis. Further, it is assumed that dock maintenance fees and storage fees go primarily to local businesses. However, dock owners were not asked to identify the locations of their insurance companies or boat repair shops. Thus, the extent to which these expenditures accrue to the local economy is not known, but they have been counted as occurring locally (within the six-county region).

5 Summary and Discussion

Users of community-owned docks at Table Rock Lake spent \$50.9 (\$61.6)¹ million in trip-related expenditures and \$5.8 (\$7.0) million in purchases of new boats and annual services within 30 miles of the lake in 1999. Combining both trip-related and durable expenditures, the direct economic effects of dock user spending were \$34.2 (\$41.4) million in sales, \$12.4 (\$15.1) million in personal income, and \$18.7 (\$22.6) million in direct value added. With multiplier effects, created by the recirculation of the money spent by dock users, visitor spending generated a total (direct + secondary) of \$51.6 (\$62.5) million in local sales, an associated \$18.2 (\$22.0) million in personal income, and \$28.6 (\$34.6) million in value added. Sectors receiving the greatest benefit from community dock users were retail trade, food and drink, manufacturing, and other services. The \$34.2 million in direct sales is about 5.8 percent of the total of all tourism activity (\$605 million) (sales have been price inflated for this computation).

Total economic impacts (Tables 15, 16, and 17) are useful for accountability purposes, lake support, and explaining the role of the lake in the region's economy. The REAS model results can also be used to evaluate management alternatives and strategies and to conduct sensitivity analyses. The marginal economic impacts of particular visitor segments are useful for evaluating particular actions. Table 18 shows the changes in sales, jobs, income and valued added associated with an increase or decrease of 1,000 additional party trips by each segment. Marginal impact analysis provides answers to the question: "What if?" (Reference Foreword.)

For example, to evaluate the regional economic impacts of adding 18 docks, first compute the change in party trips – 10 docks produce 573 party trips (average of 57.3 trips per dock per year from Table 3 times 10 docks). That means 18 new docks would produce about 1,000 extra party trips per year. Applying the average spending for the overnight segment in Table 9, the expansion generates an additional \$279,000 in total trip spending (\$279 per party trip from Table 9 times 1,000), \$167,250 in direct sales in the region, \$64,400 in personal income,

¹ Numbers in parentheses are in 2004 dollars (see Table 17).

\$97,100 in value added and 3.9 jobs in direct effects (computed from ratios in Table 15). In 2004 dollars, the extra 1,000 party trips per year by community dock users would result in \$202,400 in direct sales in the region and \$78,000 in direct personal income.¹ The impact of this alternative could be compared to others.

Table 18. Direct impacts of an additional 1,000 community dock owner party trips by segment, Table Rock Lake.

Segments	Local Spending (\$)	Direct Sales (\$)	Personal Income (\$)	Value Added (\$)	Jobs
<i>(Marginal impacts per 1,000 party-trips, in 1999 dollars)</i>					
Day use	\$75,589	\$45,381	\$17,486	\$26,352	1.1
Overnight stay	\$278,582	\$167,250	\$64,443	\$97,120	3.9
Small boat	\$150,306	\$90,238	\$34,770	\$52,400	2.1
Medium boat	\$185,864	\$111,586	\$42,995	\$64,797	2.6
Large boat	\$285,500	\$171,403	\$66,043	\$99,532	4.0
<i>(Marginal impacts per 1,000 party-trips, in 2004 dollars)</i>					
Day use	\$91,463	\$54,911	\$21,158	\$31,886	1.1
Overnight stay	\$337,084	\$202,373	\$77,976	\$117,516	3.9
Small boat	\$181,870	\$109,188	\$42,071	\$63,404	2.1
Medium boat	\$224,896	\$135,019	\$52,024	\$78,404	2.6
Large boat	\$345,455	\$207,398	\$79,912	\$120,434	4.0

The economic impacts presented in this report document the economic significance of 321,477 community dock user trips at Table Rock Lake in 1999. The impacts will vary from year to year with changes in prices, visitor volumes, the mix of visitors attracted, and other changes in the lake and surrounding communities. The REAS model has built-in procedures to price-adjust spending averages over time, so updated figures may be obtained fairly easily, as we have done in this report, if there are not significant changes in visitor use and spending patterns. In the absence of significant structural changes in the local economy, multipliers will be quite stable. The primary input for updating the estimates is visitation, which must take into account any changes in the mix of visitors or their length of stay in the area.

¹ The number of jobs, 3.9, remains the same in 2004 because Table 18 reflects the marginal impacts of 1,000 additional party trips; since the ratio between sales and jobs remains the same between 1999 and 2004, the number of jobs per 1,000 additional party trips does not change.

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