

Geneva Lake Watershed Survey^a

by

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EXECUTIVE SUMMARY

Designed by the Geneva Lake Conservancy and the University of Wisconsin-Whitewater's Center for Fiscal and Economic Research, The Geneva Lake Watershed Survey seeks to gather information from property owners in the Geneva Lake Watershed. The intent is that information collected by the survey will be useful to help guide future growth and development in the area. The survey was conducted by mail between September 2006 and December 2006, with surveys mailed to a random sample of 1,610 residents in the Geneva Lake Watershed. This survey was followed up by two postcards encouraging participation. Four hundred ninety two (492) completed surveys were returned, yielding a response rate of 30%. It should be noted that this response rate is similar to those achieved by surveys of similar content and purpose. The major findings of the survey include:

- a. While the respondents are familiar with the idea of a watershed, they are less familiar with the Geneva Lake Watershed.
- b. There exists a lack of support for large subdivision development in both the Geneva Lake area and Southern Walworth County.
- c. There exists a sense that there should be inter-jurisdictional cooperation and the creation of a common vision regarding residential, commercial and industrial development.
- d. The respondents indicate support for the development of a formal lake management district.
- e. Respondents voice concern that a reduction in water quality would have a significant impact on them.
- f. There exists a belief that the supply of single family housing and condominiums is adequate.
- g. There exists an opposition to industrial development.
- h. There is an increasing likelihood of respondents leaving the Geneva Lake region as development pressures increase.
- i. This response on development corresponds with a concern about overall development pressures.
- j. This research demonstrates that households in the Geneva Lake watershed play a vital role in the regional economy, generating \$321 million in spending, \$57 million in labor income and 2,904 jobs in the regional economy.

Included in the body of this report are details regarding all of the questions posed in the survey, as well as a technical description of the analysis process. It is crucial to keep in mind that these survey results reflect a static response given at one point in time. These views may vary with changing circumstances. Finally, the spending patterns of Geneva Lake area residents, as determined by the survey, are further examined in the Input/Output Analysis section of the report (Section IX).

I. INTRODUCTION

Designed by the Geneva Lake Conservancy and the University of Wisconsin-Whitewater's Center for Fiscal and Economic Research, The Geneva Lake Watershed Survey seeks to gather information from property owners in the Geneva Lake Watershed. The intent is that the information collected by the survey will be useful to help guide future growth and development in the area. The survey was conducted by mail between September 2006 and December 2006, with surveys mailed to a random sample of 1610 residents in the Geneva Lake Watershed. This survey was followed up by two postcards encouraging participation. The sample included residential property owners within the boundaries of the watershed. As a result, the survey boundaries included sections of the Town of Linn, the City of Lake Geneva, and the Villages of Williams Bay and Fontana. Four hundred ninety two (492) completed surveys were returned, yielding a response rate of 30 percent (see Appendix A, Technical Report).

Through the use of random sampling, this survey provides detailed results. By performing univariate and multivariate analyses on the survey data, useful information can then be generated for the community. In this report, univariate analysis (which involves the examination of one variable at a time) concentrates on the level of support, or lack thereof, given to various issues and ideas within the community. Multivariate analysis, on the other hand, focuses on the simultaneous investigation of two or more variable characteristics. This compares, for example, respondents' demographic characteristics with their levels of support for various issues and ideas. In this report, a chi square test is used for such multivariate analyses.

While the demographic questions posed at the end of the survey are designed to develop a picture of the Geneva Lake Watershed, they also serve to answer the relevant demographic question: How does the sample reflect the 2000 United States Census result? Due to the sampling of homeowners (we randomly selected 1,610 homeowners from an original list of 13,867 taxable

properties), the sample is slightly older and wealthier. While the average age of an adult resident of Walworth County (according to the 2000 Census) is 49.1 years, the average age of the survey respondent is 53.9 years. In addition, while the median income in the census is \$57,952, this survey found the median respondent income to be \$88,225. Even if we take inflation into account between 2000 and 2006, the sample is clearly a wealthier cohort.

The survey is also more likely to have been completed by men. While the census found that over 56% of Walworth County residents were female, the survey was completed by men 51.6% of the time. Finally, the average household size of the respondents is higher than the average household size in the census. The differences between the census demographics and the survey are primarily a reflection of the decision to sample homeowners. As a result, the results reflect the vision of longer term residents who are older and wealthier.

This report focuses on three issues. The first issue is the aggregate community opinion on questions regarding future development. All of the question responses are summarized according to their level of support (agree or strongly agree) as opposed to their level of opposition (disagree or strongly disagree). The second issue is the support these questions have within certain demographic categories. In this analysis, we attempt to determine if there is any difference in support/opposition between groups defined by age, gender, income, and tenure.

The third and final issue confronted in this study is the analysis of the economic impact the watershed has on the local economy. This research demonstrates that households in the Geneva Lake watershed play a vital role in the regional economy, generating \$321 million in spending, \$57 million in labor income, and 2,904 jobs in the regional economy.

The basic econometric tool used to analyze relationships between respondent demographic characteristics and the opinions expressed by respondents is the Pearson's Chi-Square test. Karl Pearson introduced the Chi-Squared test in 1900. This test uses a general difference equation as follows:

Simple Equation for the Chi Square Test: $\chi^2 = \sum_{i=1}^k (O_i - E_i)^2 / E_i$

where k is the number of categories

O_i is the observed frequency in category i

E_i is the expected or hypothesized frequency in category i

Although this test evaluates the null hypothesis (there are no differences between groups), it does not claim to explain causality. It is important to resist claims of insight regarding the preferences of the individual respondents. As a result, the conclusions are mathematical, not conclusive. It is also critical to note that the results are the product of a static environment and a condition of *ceteris paribus*.

The next section of this report presents general information about the respondents to the survey. This is followed by sections that discuss, in turn, respondents' attitudes and opinions regarding development, preservation, and water quality issues; economic and housing development; and future scenarios of development in the Geneva Lake area. Then, we present the expenditure patterns of the respondents and, finally, discuss the results of the input/output analyses performed using those expenditure data. Appendix A provides details on some of the technical approaches used in the study. Appendix B discusses details of the input-output analysis and supporting software, while Appendix C includes the study's questionnaire.

II. GENERAL INFORMATION

The survey’s first section deals with general information about the respondents. Through these questions, one can familiarize themselves with who is completing these surveys. We find that while a small portion of Geneva Lake’s watershed population own property which abuts the shoreline of Geneva Lake, almost seventy percent of those responding no to the first question do have property that has lake access. The respondents’ relationship with the lake is shown even more so as about 65 percent of respondents regularly use a boat or other watercraft on Geneva Lake. (The “N” column found in the tables throughout the survey represents the number of respondents who completed the given question).

Table 2.1
 General Information
 Quality Issues
 (1= “Yes”; 2= “No”)

	Percent “Yes”	Percent “No”	Mean Score	(N)
Do you own property that abuts the shoreline of Geneva Lake?	33.8%	66.2	1.7	497
If “no,” do you own property that has lake access to Geneva Lake due to its property rights?	68.6	31.4	1.3	328
Do you regularly use a boat or watercraft on Geneva Lake?	65.3	34.7	1.3	496
Are you a member of a subdivision association?	54.3	44.7	1.5	492
Do you know what a watershed is?	73.5	26.5	1.3	490
Are you familiar with the Geneva Lake watershed?	58.4	41.6	1.4	486

Findings from multivariate analyses of the general information section of the survey include:

- a. There is a positive relationship between income and the likelihood of one owning property abutting the shoreline of Geneva Lake.
- b. Respondents whose property abuts the lake are more likely to have attained either a Master’s or Ph.D./M.D./J.D. degree, relative to those whose property does not abut the lake.
- c. As the household size increases, so does the likelihood that the respondent owns property that abuts Geneva Lake.

- d. As income rises, respondents are much more likely to regularly use a boat or watercraft on the lake; nearly ninety percent of those earning more than \$500,000 use a boat or watercraft on Geneva Lake regularly.
- e. Permanent residents are less likely to use watercraft or boats regularly on Geneva Lake than those whose permanent residence is elsewhere.

Property Use

Respondents were asked to approximate the number of days in each of the four seasons (Summer, Fall, Winter, Spring) in which their property in the watershed was utilized. Use was differentiated between the owners and ‘outside parties’. Within this question, the extremes (Less than 15 days; More than 75 days) dominate (See Table 2.2). In addition, there are general differences in property utilization between each ‘season.’ For example, those who consider the area as their year-round, permanent residence would likely be found in category “5.” In the summer, the numbers are noticeably higher. However, the numbers taper off in the following seasons, but remain constant around the 30% mark. This provides insight into the permanent resident, which will come of use later in the report. (Table 2.2; Table 2.3; Table 2.4)

Table 2.2
 General Information
 Property Utilization
 (“1”=Less than 15 days; “2”=15 to 25 days; “3”=26 to 50 days;
 “4”=52 to 75 days; “5”=Over 75 days)

Total Usage

	Percent “Less than 15 days”	Percent “15 to 25 days”	Percent “26 to50 days”	Percent “51 to75 days”	Percent “Over 75 days”	Mean Score	(N)
Summer	6.5%	6.0%	23.4%	13.5%	46.7%	3.8	465
Fall	28.8	11.7	19.2	5.1	31.4	2.9	452
Winter	43.2	9.0	8.8	2.1	33.6	2.6	387
Spring	34.1	11.0	17.4	2.5	30.9	2.7	437

Findings from multivariate analyses of the property utilization section of the survey include:

- a. Those spending more than \$500,000 a year are more likely to utilize their Geneva Lake homes more than 75 days during the Summer.

Table 2.3
General Information
Property Utilization
("1"=Less than 15 days; "2"=15 to 25 days; "3"=26 to 50 days;
"4"=52 to 75 days; "5"=Over 75 days)

Used by "You or Immediate Family"

	Percent "Less than 15 days"	Percent "15 to 25 days"	Percent "26 to50 days"	Percent "51 to75 days"	Percent "Over 75 days"	Mean Score	(N)
Summer	7.6%	6.1%	24.8%	13.9%	43.6%	3.7	459
Fall	30.1	12.8	18.2	4.7	30.6	2.8	445
Winter	45.3	8.7	8.2	2.1	32.6	2.6	380
Spring	35.4	12.8	15.6	2.1	30.8	2.7	429

Findings from multivariate analyses of the property utilization (Respondent and/or Immediate Family only) section of the survey includes:

- a. Among those whose property abuts the lake, about thirty-eight percent are in the area during the summer 75 days or more
- b. Only 17 percent of those whose property abuts the shore of the Lake are present over seventy-five days during the fall; 40 percent visit less than 15 days during the fall.

Table 2.4
General Information
Property Utilization
("1"=Less than 15 days; "2"=15 to 25 days; "3"=26 to 50 days;
"4"=52 to 75 days; "5"=Over 75 days)

Used by "Other Parties"

	Percent "Less than 15 days"	Percent "15 to 25 days"	Percent "26 to50 days"	Percent "51 to75 days"	Percent "Over 75 days"	Mean Score	(N)
Summer	56.1%	7.0%	17.5%	3.5%	14.0%	2.1	57
Fall	68.2	6.8	6.8	2.3	13.6	1.8	44
Winter	71.0	0.0	6.5	0.0	19.4	1.9	31
Spring	66.7	7.7	7.7	0.0	15.4	1.8	39

III. DEVELOPMENT, PRESERVATION AND WATER QUALITY ISSUES

The following section asks respondents to rate their level of agreement with several statements concerning the environment surrounding the Geneva Lake Watershed. These questions also focus on various types of development. A large proportion of the respondents respond either Disagree or Strongly Disagree to the following statements (Table 3.1):

- “Expanded large subdivision residential development in Southern Walworth County is needed and should be encouraged.”
- “Expanded large subdivision residential development in the Geneva Lake area is needed and should be encouraged.”

However, respondents appear indifferent on the statement that “The towns, cities and villages surrounding Geneva Lake work together to plan for future development of our watershed area.”

While there is concern over development, respondents are not entirely opposed to residential development: over 40 percent of respondents support residential development with an accompaniment of conservation development. Respondents are also found to deem the environment surrounding them as a significant facet of their life in the Geneva Lake area (Table 3.1).

Table 3.1¹
**Development, Preservation, and Water
Quality Issues**

	Percent “Strongly Agree”	Percent “Agree”	Percent “Disagree”	Percent “Strongly Disagree”	Mean Score
Development Issues					
Expanded large subdivision residential development in <i>Southern Walworth County</i> is needed and should be encouraged	1.6%	4.7%	15.3%	66.0%	1.5
Expanded large subdivision residential development in the <i>Geneva Lake area</i> is needed and should be encouraged	1.2	3.5	11.6	75.7	1.3
The Geneva Lake area is the “front door” to Wisconsin	28.6	33.1	7.3	5.7	3.5
The towns, cities and surrounding Geneva Lake work together to plan for future development of our watershed area.	24.7	21.0	15.3	12.0	2.9
A common vision should be formed through inter-jurisdictional cooperation that has some influence on residential, commercial, and industrial development, zoning and other decisions affecting the character of our region	62.5	25.5	2.0	2.4	4.4
A formal lake management district would serve the interests of the community with regard to the management of the Geneva Lake watershed	46.3	30.7	2.3	3.5	4.0
I prefer residential development that includes plans for conservation development over more traditional larger plot residential development	44.5	27.4	5.0	8.5	3.9

Findings from multivariate analyses of the development issues section of the survey include:

- a. Those who felt some of the original factors that had brought them to the watershed hadn’t changed were more likely to Agree with the statement that expanded large subdivision residential development in *Southern Walworth County* is needed and should be encouraged.
- b. There is an inverse relationship between agreeing with the statement that expanded large subdivision residential development in *Southern Walworth County* is needed, and respondents’ likelihood of leaving the area as a result of population growth.

In the section summarized by Table 3.2, we find that respondents strongly agree that the

¹ The results in the Likert Scale questions omit “No Answer” and “Neutral” for brevity

environment is one of the key factors in their living in the Geneva Lake Watershed. Taken further, the environment is an important issue in their investment in the Geneva Lake area.

The strongest opinion is shown with nearly eighty percent of respondents strongly agreeing with the statement that “The potential for a reduction in the water quality of Geneva Lake would have a significant impact on me.” Further concern by respondents is evident in the statement that “The Geneva Lake watershed should be protected even if that means limiting future development in the Geneva Lake region,” with over seventy percent strongly agreeing (Table 3.2). This section is unique in that there is no significant difference among the responses of different groups of residents.

Table 3.2
Development, Preservation, and Water
Quality Issues

	Percent “Strongly Agree”	Percent “Agree”	Percent “Disagree”	Percent “Strongly Disagree”	Mean Score
Preservation and Water Quality Issues					
The natural wooded sightlines around much of Geneva Lake is being increasingly broken by construction of large and multiple homes	47.2%	35.6%	6.3%	2.2%	4.2
Historic estate properties, institutions and structures around the lakeshore should be preserved for future generations to appreciate	57.6	25.4	4.5	2.8	4.3
The Geneva Lake watershed should be protected even if that means limiting future development in the Geneva Lake region	72.8	19.0	1.8	1.0	4.5
The potential for a reduction in the water quality of Geneva Lake would have a significant impact on me	78.9	15.4	1.4	0.6	4.7
A reduction in the water quality of Geneva Lake would have a significant impact on me	72.4	19.1	0.8	0.6	4.6
Changes in the quantity and quality of groundwater underlying the Geneva Lake watershed can affect me, my health, and quality of life	72.8	19.3	0.4	0.4	4.6

IV. ECONOMIC AND HOUSING DEVELOPMENT

This section investigates the respondents’ level of agreement with an assortment of statements regarding housing and development (clothing & grocery stores, restaurants, etc.). It also explores the idea of utilizing Tax Incremental Financing (TIF) as a means of encouraging these various developments.

Housing

Respondents express a strong level of agreement, with mean scores close to 4, with the statements that single family housing and condominium availability are adequate. Building upon those statements, respondents appear to believe that the Geneva Lake area is possibly at a tipping point with regards to additional housing development; over seventy percent of respondents disagree or strongly disagree with the statement that the watershed can sustain more housing (Table 4.1).

Table 4.1
Housing

	Percent “Strongly Agree”	Percent “Agree”	Percent “Disagree”	Percent “Strongly Disagree”	Mean Score
Housing					
Single family availability is adequate	41.1%	31.6%	5.7%	1.4%	3.9
Condominium availability is adequate	50.7	25.3	3.5	3.7	4.0
The Geneva Lake area can sustain more housing	2.0	13.5	22.7	49.6	1.9

Findings from multivariate analyses of the housing section of the survey include:

- a. Respondents spending over \$100,000 a year in the watershed area are more likely to strongly agree with the statement that single family housing availability is adequate.
- b. Additionally, the respondents spending over \$100,000 a year are more likely to agree or strongly agree that condominium availability is adequate.

Economic Development

There is little support for additional economic development in the region (Table 4.2). Those that see strong opposition include: Grocery Stores, Industrial Development, and Fast Food Restaurants (holds the highest level of opposition). However, there is limited support for businesses geared toward local jobs and more Full Service Restaurants (Table 4.2).

Table 4.2
Economic Development

	Percent “Strongly Agree”	Percent “Agree”	Percent “Disagree”	Percent “Strongly Disagree”	Mean Score
The region surrounding Geneva Lake needs to attract more...					
Grocery Stores	8.8%	24.4%	17.9%	26.7%	2.6
Clothing Stores/department stores	6.7	20.8	18.1	26.3	2.5
Industrial Development	6.8	14.6	15.9	41.2	2.2
Businesses geared toward local job creation	15.1	38.4	9.6	14.9	3.2
Full service restaurants	14.3	26.1	17.5	20.8	2.9
Fast food restaurants	2.5	5.8	18.8	53.9	1.8

Findings from multivariate analyses of the economic development section of the survey include:

- a. Those whose permanent residence is in the watershed are more likely to support industrial development than those whose residence is not permanent. However this support is limited.
- b. Respondents whose expenditures in the Geneva Lake area are between \$100,000 and \$500,000 are more likely to oppose an attraction of more grocery stores.
- c. The opposition to the statement that the watershed needs to attract more businesses geared toward local job creation was led by non-permanent resident respondents.
- d. Those whose highest level of education was High School are more likely to agree with the statement that the watershed needs to attract more clothing/department stores.
- e. Those spending between \$100,000 and \$500,000 are more likely to strongly disagree with the statement that the Geneva Lake area needs to attract more industrial development to the area.

Tax Incremental Financing (TIF)

Tax Incremental Financing (TIF) is a frequently considered option in terms of development in a community. We asked respondents to express their levels of agreement with several statements regarding their understanding of TIF and the notion that TIF is a desirable strategy (Table 4.3). As inspection of the table shows, none of these statements received strong levels of agreement. The majority received moderately high levels of disagreement, as represented by the mean scores that are in the range of 1.6 to 2.8 (a score of 2 is representative of “Disagree”). Respondents disagree most with TIF as a means of residential development, while other areas of opposition include industrial and commercial development. It should be noted, however, that the respondents’ basic understanding of TIF is vague, given that the average response (2.8) is slightly under “Neutral.”

Table 4.3
Tax Incremental Financing

	Percent “Strongly Agree”	Percent “Agree”	Percent “Disagree”	Percent “Strongly Disagree”	Mean Score
Tax Incremental Financing					
I feel I understand the basic nature of TIF	18.9%	29.0%	10.3%	16.3%	2.8
TIF is an important development tool	10.3	27.8	7.5	8.9	2.4
TIF should be used for industrial development	6.1	16.3	12.7	16.5	2.0
TIF should be used for commercial development	4.3	17.8	12.4	16.0	2.0
TIF should be used for residential development	2.9	8.8	13.5	28.6	1.6
I believe TIF is an effective strategy for economic development	6.5	23.3	9.0	9.7	2.2

Findings from multivariate analyses of the tax increment financing section of the survey include:

- a. Over 85 percent of respondents spending over \$500,000 a year in the Geneva Lake area strongly agree with the statement that “I understand the basic nature of Tax Increment Financing (TIF)”; around 60 percent of the remaining respondents claim the same understanding.

- b. Respondents whose annual expenditures exceed \$500,000 are more likely to oppose residential development that utilizes TIF.
- c. A positive correlation exists between annual expenditures and level of agreement with the statement that TIF is an effective strategy for economic development.

V. FUTURE CHANGES IN THE GENEVA LAKE AREA

According to the State of Wisconsin Department of Administration, by 2020 the Geneva Lake Watershed is projected to have an increased population of nearly 25 percent. Current proposed development projects suggest population increases of as much as 50 percent. This section deals with the possible impact of this growth.

One possible result of this growth is the exodus of some subset of the current population: a 25 percent increase in population size will potentially result in nearly 20 percent of the survey respondents leaving the Geneva Lake area (based on the answers “Somewhat Likely” or “Very Likely” to leave the area). Larger population increases result in larger percentages of respondents indicating they would leave. A 100 percent population increase, for example, yields almost 60 percent of respondents stating that they would likely leave the area. (Table 5.1)

Table 5.1
Possible Future Changes in the Geneva Lake Area
(1= “Very Unlikely to Leave”; 2= “Somewhat Unlikely to Leave”; 3= “Neutral”; 4= “Somewhat Likely to Leave”; 5= “Very Likely to Leave”)

	Percent “1”	Percent “2”	Percent “3”	Percent “4”	Percent “5”	(N)
If population in Geneva Lake area grew by 25% (from 20,000 to 25,000)	38.4%	20.9%	23.0%	11.7%	6.0%	373
If population in Geneva Lake area grew by 50% (from 20,000 to 30,000)	22.1	18.4	17.6	27.2	14.7	487
If population in Geneva Lake area grew by 100% (from 20,000 to 40,000)	17.6	10.0	12.9	21.9	37.5	489

Findings from multivariate analyses of the possible future changes in the Geneva Lake area section of the survey include:

- a. If the population were to grow by 50 percent, those spending more than \$500,000 per year in the Geneva Lake area are statistically most likely to leave.
- b. Excluding those whose expenditures in the area are under \$5,000 per year, over 50 percent of all respondents indicated that they would be “Somewhat Likely” or “Very Likely” to leave the watershed if a population surge of 100 percent took place.

- c. If the population were to double, 100 percent of those whose yearly expenditures exceed \$500,000 responded that they would be either “Somewhat Likely” or “Very Likely” to leave.

Respondents expressed a strong level of agreement with the statement that “I am concerned with excessive population growth in the region.” This is indicated by a mean score of 4.3 for this question of the survey (Table 5.2). The results also suggest that respondents oppose population-growth policies promoted by the state and local levels of government. However, the statement that “State and local governments should encourage regional economic growth” draws mixed reactions.

Table 5.2
Population and Economic Growth

	Percent “Strongly Agree”	Percent “Agree”	Percent “Disagree”	Percent “Strongly Disagree”	Mean Score
I am concerned with excessive population growth in the region	59.0%	26.2%	3.7%	2.8%	4.3
State and local government should encourage regional population growth	3.3	11.6	21.6	46.0	2.0
State and local governments should encourage regional economic growth	12.0	40.1	10.4	15.9	3.2

Findings from multivariate analyses of the population and economic growth section of the survey include:

- a. Respondents who are not currently full-time residents, but plan to be such at some future point, are more concerned with excessive population growth than those not planning to become full-time residents.
- b. Those who answered “yes” to the question “When thinking about factors that originally drew you to the lake area, have any of these characteristics about the lake area noticeably changed since you first bought your property?”, are more likely to be concerned with the excessive population growth in the Geneva Lake area.

- c. There is a significant difference in the level of agreement to the statement that “I am concerned with the excessive population growth in the region”; respondents who currently like it less are much more likely to strongly agree.
- d. Respondents whose highest level of education is high school are more likely to strongly agree with the statement that state and local government should encourage regional population growth.
- e. Respondents who rent their watershed property out are less likely to be concerned about excessive population growth.

Table 5.3 shows respondents’ indications regarding whether they would spend more, less, or the same amount of time at their Geneva Lake area properties in the event that population in the area were to increase by 50 percent. Approximately 60 percent of the respondents indicated they likely would spend the same number of days each year at their property in response to such a scenario. However, about 34 percent of the respondents replied that they likely would spend *fewer* days per year at their Geneva Lake area property in the event of a 50 percent population increase. Among these thirty-four percent of respondents, the mean respondent estimated a drop in residency time of 49 days per year. Clearly, this would have an impact on the amounts of money spent in the Geneva Lake area, at least by existing (current) residents. Baseline expenditure patterns of residents are summarized in the next section, and the input/output analyses conducted to examine the total impacts of this spending are presented in Section IX.

Table 5.3
Changes in Days Spent at Geneva Lake Property
under a 50 Percent Population Increase Scenario

If population in the Geneva Lake area increased by 50%, I / my family would spend...

	Percent of respondents indicating they would spend <i>fewer days</i> at property	Percent of respondents indicating they would spend <i>more days</i> at property	Percent of respondents indicating they would spend <i>same amount of time</i>
Totals	33.6%	3.0%	60.4%
Less than 15 days more/less	52.7%	46.7%	N/A
16 to 100 days more/less	33.7%	40.0%	N/A
101 to 180 days more/less	3.6%	6.7%	N/A
181 to 300 days more/less	2.4%	0.0%	N/A
More than 300 days more/less	7.7%	6.7%	N/A
Mean Score (days more or less)	49.4	49.7	N/A

VI. RESIDENTS' EXPENDITURES IN THE GENEVA LAKE AREA

There is a measurable economic impact from the spending of residents (full- and part-time) in the Geneva Lake area. This section deals with common expenditures made by those residents.

Respondents to the survey were asked to approximate the amounts expended on various items in a given year. The information thereby collected from the survey is summarized in Table 6.1.

Table 6.1
Expenditures

Please fill in the amount your household spends in the Geneva Lake area on the items listed below over the course of an average year.

	Percent \$0 to \$1000	Percent \$1,001 to \$5,000	Percent \$5,001 to \$10,000	Percent More than \$10,000	Mean Annual Expenditure	(N)
Construction / remodeling of your Geneva Lake home	25.8%	29.1%	16.6%	28.5%	\$48,088.70	361
Bait and Tackle	97.5	2.1	0.4	0.0	120.69	281
Launch Fees	91.7	6.9	1.4	0.0	277.66	276
Dining Out	31.7	54.9	9.6	3.8	2,198.19	397
Entertainment	61.5	32.3	4.2	2.0	1,112.25	356
Groceries and Liquor	17.6	51.3	21.2	9.9	3,851.36	392
Gas / oil for vehicles / boats	42.0	48.3	8.1	1.6	1,755.31	383
General shopping	41.5	46.1	8.7	3.3	1,806.66	366
Tourist shopping	77.6	19.2	1.9	1.3	715.38	317
Licenses / registration / permits	92.9	6.5	0.3	0.3	262.66	340
All other	49.7	35.4	6.1	8.8	<u>2,414.38</u>	147

Total = \$62,603.24

Findings from multivariate analyses of the expenditure patterns of Geneva Lake area residents include:

- a. Among those who spend a total of more than \$500,000 per year, only 12.5 percent have lived in the Geneva Lake area for more than thirty years.
- b. Respondents whose age is greater than 65 are more likely to spend a total of less than \$5,000 per year on the above items.

VII. RESPONDENT PROFILE

Below we present summary data, which provide a profile of the respondents.

Household Size

One	11.9%
Two	46.1
Three	11.3
Four	15.6
Five	7.2
Six	4.1
Seven or more	3.7

Average Household Size 3.07

Years lived in the Watershed

2 years or less	4.7%
3 to 5 years	9.5
6 to 10 years	15.3
11 to 20 years	18.4
21 to 30 years	18.0
More than 30 years	34.1

Average tenure in Geneva Lake 25.8

Household income

Less than \$34,999	5.6%
\$35,000 to \$49,999	6.8
\$50,000 to \$74,999	10.7
\$75,000 to \$99,999	11.7
\$100,000 to \$149,999	19.2
\$150,000 to \$199,999	12.4
\$200,000 to \$299,999	10.0
\$300,000 to \$499,999	10.0
More than \$500,000	13.8

Average Household Income \$200,635

Age

18 to 29	0.6%
30 to 44	10.1
45 to 54	22.7
55 to 64	31.1
65 to 74	22.7
75 or older	12.8

Average Age 59.6

Is Your Geneva Lake area property your primary residence?

Yes	33.1%
No	66.9

Do you Rent this Property Out?

Yes	4.9%
No	95.1

Sources Regarding Issues and Events Relevant to Geneva Lake

Local	36.4%
The Beacon	61.1
“Lake Geneva” Regional News	71.5
Milwaukee Journal Sentinel	11.0
Other	31.8

Highest Level of Education Completed

High School	17.0%
Bachelor’s Degree	43.0
Masters	24.5
Ph.D. / M.D. / J.D.	15.5

VIII. 2000 US CENSUS VALIDITY

In this section we provide a comparison of summary statistics of respondent profile information with US Census data.

	2000 US Census Data Results	2006 “Lake Geneva” Comprehensive Survey Results
Age		
18-24	12.7%	0.0%
25-34	19.7	1.5
35-44	19.1	9.2
45-54	18.3	22.7
55-64	10.7	31.1
65-74	10.4	22.7
75+	9.0	12.8
<i>Mean Age</i>	45.98	59.6
Household Size		
Average Household Size	2.33	3.07
Average Household Size of Owner- Occupied Unit	2.43	2.83
Average Household Size of Renter- Occupied Unit	2.22	2.70

IX. INPUT/OUTPUT ANALYSIS

The impact of receipts and expenditures attracted to the Geneva Lake area because of the presence of Geneva Lake is felt throughout the entire local economy. Mortgage payments, grocery bills, and new cars are all affected by expenditures made by property owners in the watershed. As a result, the revenue of banks, supermarkets, car dealers, etc... are affected by these expenditures.

The linkages between sectors within the regional economy can be measured using multipliers. While we use three types of multipliers in this analysis, we present a brief explanation of one (the expenditure multiplier) to illustrate this concept. Multipliers are composed of direct, indirect, and induced effects. The direct effect occurs in the first round through the direct expenditures of households and visitors. The indirect and induced effects focus on how the direct expenditures cause a ripple effect, which lead to additional spending in other sectors of the economy. The induced multiplier effect is generated from the proportion of total expenditures spent by property owners in the Lake Geneva watershed. On the other hand, expenditures incurred outside the Lake Geneva economy are considered leakages.²

Analysts use the multiplier to describe and quantify the relationships, or linkages, between various economic entities within an economy. Multipliers describe these relationships using several different economic indicators such as industry output, personal income, and employment.

This study uses three indicators most commonly used in economic impact analysis: total expenditure, employment, and personal income. Total expenditures

² A leakage is defined as a flow of dollars leaving the community as residents spend money in other communities.

provide a measure of total economic activity that is occurring within a specific sector as well as how it relates to total economic activity in the region. Similarly, employment estimates provide an evaluation of the number of jobs in a sector or specified sub-sector of the economy. Finally, personal income, defined as the wages, profits and other types of earned income, provides an indication of employee earnings attributable to a particular sector of the economy.

Economic Impact Analysis

One key objective of this report is to quantify the importance of households in the Geneva Lake watershed to the local economy.³ Due to the interrelationships between different sectors of an economy we must consider how the tourism sector is linked to the rest of the economy. Importantly, we must quantify not only the direct economic impact of Geneva Lake area households and visitors, but also the indirect and induced effects.⁴ To illustrate, consider the largest component of Geneva Lake watershed area expenditures—spending by households. A portion of the spending by these households occurs in the Geneva area, thereby supporting other economic activity. However, not all household spending occurs in the defined region. We therefore must take into consideration such leakages out of the local economy. However, when a portion of these expenditures is made in the region a multiplier effect occurs: Household spending in Geneva stimulates additional spending in the local economy. Input-output analysis

³ It should be noted that a number of households in the City of Lake Geneva are not actually in the watershed and were not surveyed. Spending by these households are not included in this analysis. Also, expenditures by day visitor and overnight visitors are not included. Last, in the construction/remodeling expenditure category, one responding indicated a \$7 million expenditure. This is clearly an outlier and therefore omitted from the analysis. For these reasons, the expenditure estimates here are conservative and are likely considerably larger.

⁴ Indirect spending results from revenues generated by the suppliers of services to direct businesses. Induced spending is the result of revenue generated in the community from spending by employees of businesses.

enables us to capture the linkages between the tourism sector and the rest of the local economy. It does so by using regional data to generate multipliers, which are used to quantify the relationships between firms and households. In this context, we will use the multipliers to estimate the total economic impact of households in the region because of Geneva Lake on the regional economy.

The software used to conduct the input-output analysis is IMPLANPro.⁵ Appendix B provides a more detailed description of IMPLANPro and input-output analysis. While other software packages can be used to conduct this type of analysis, IMPLANPro was chosen because of its flexibility, modeling capability, ease of data management and interpreting impact analysis results. IMPLANPro utilizes secondary county-level (for Walworth County) data such as economic output, employment, and personal income for the year 2001 obtained from published sources such as the Bureau of Census, the Bureau of Labor Statistics, and Regional Economic Information Systems (REIS).

The following approach was used to estimate the importance of Geneva Lake households and visitors to the local economy. First, as previously discussed information about household expenditures was collected from a questionnaire that was completed by households in the Geneva Lake area. Information on total expenditures and other detailed expenditure categories was collected. These data in conjunction with IMPLANPro are then used to determine the economic impact of Geneva Lake on the regional economy. The results of the economic impact analysis are presented below.

⁵ In 2005, a similar analysis was conducted for Delavan Lake, Wisconsin by Eiswerth, Kashian and Skidmore (2005). Given that the input-output analyses for both Delavan and Geneva Lakes would utilize county-level data for Walworth County, the multipliers are identical. Thus, we utilize the multipliers generated from Eiswerth, Kashian and Skidmore (2005) in the present study.

Results

As shown in Table 9.1, households in the Geneva Lake watershed are an important component of the local economy. Assuming that in the absence of Geneva Lake the roughly 29 square mile area around the lake would have the average number of households per square mile in Walworth County (62), spending by property owners accounted for more than \$265.4 million in direct local expenditures and with the multiplier effect generates about \$321 million of total spending in the local economy.⁶ In total, economic activity associated with property owner spending results in about 2,904 jobs and \$57 million in labor income.⁷

Table 9.1
Economic Impact of Geneva Lake on Local Economy
Input-Output Table

	Direct	Indirect/Induced	Total
Property Owner Spending			
Expenditures	\$265,406,112	\$55,735,283	\$321,141,396
Labor Income	\$40,706,458	\$16,282,583	\$56,989,041
Employment	2150.9	752.8	2,903.7

Comparisons with Other Studies

Two recent studies have evaluated the economic impact of lake-amenities to regional economies. Both comparison studies examine the economic impact in primarily rural areas, and thus provide a reasonable benchmark for this study. Murray, et al (2003)

⁶ The study area (Geneva Lake watershed) contains approximately 9,200 households within a 29 square mile area. On average, there are about 62 households per square mile in Walworth County. Using an average household density of 62 households per square mile as a baseline, in the absence of Geneva Lake there would be roughly 1798 households in the district. Thus, we estimate conservatively that the lake attracts more than 7,402 households to the region.

⁷ The focus of this study is on household activity, but it should be noted that tourism expenditures from day visitors and overnight visitors is also substantial. We do not estimate spending from day and overnight visitors here.

examines the economic impacts of a two-month delay in annual drawdown (reducing lake levels) by the Tennessee Valley Authority. They find significant changes in economic activity resulting from reduced lake levels. To estimate the total economic impact Murray, et al (2003) employ a multiplier of 1.4, which is similar in magnitude to the multipliers used in this study. In another study, Shapiro and Kroll (2003) estimate the economic value of New Hampshire lakes, rivers, streams, and ponds. They also use a survey method to determine direct expenditures by water-amenity users. The multipliers used by Shapiro and Kroll (2003) range from 1.26-1.85. Again, this range is in line with but somewhat higher than the multipliers used in the present study. Perhaps this is not surprising given that the Shapiro and Kroll study area is much larger (the entire state of New Hampshire), whereas we study just one locality within Walworth County, Wisconsin. These comparisons, as presented in Table 9.2, give us confidence in our methodology and the magnitude of the estimated multiplier.

Table 9.2
Comparing Multipliers with Other Studies

Study	Output Multiplier	Employment Multiplier	Income Multiplier
Eiswerth, Kashian and Skidmore (2007)	1.21	1.35	1.40
Murray, et al (2003)	1.40		
Shapiro and Kroll (2003)	1.26-1.85		

Implications for the Local Economy

The preceding analysis demonstrates that households in the Geneva Lake watershed play a vital role in the regional economy, generating \$321 million in spending, \$57 million in labor income and 2,904 jobs in the regional economy. For comparison,

Eiswerth, Kashian and Skidmore (2004) estimated that households in the Delavan Lake Sanitary District generated \$63.9 million in spending, \$11.7 million in labor income and 541 jobs for the Delavan area economy. Thus, households in the Geneva Lake watershed generate economic activity that is roughly five times that of households around Delavan Lake.

Appendix A

Technical Report

The Geneva Lakes Watershed Survey was conducted by the University of Wisconsin-Whitewater's Fiscal and Economic Research Center between July, 2006 and September, 2006. Surveys were mailed to 1,610 randomly selected property owners in Menomonee Falls. Four hundred eight two (492) surveys were completed and returned by mail. The response rate for the survey was 30 percent (Table 1).

Table 1
Response Rates

Completed Surveys	492	30%
Non-returned surveys	1128	70%
Total	(1610)	100.0%

Sampling Error

The Geneva Lakes Watershed Survey, like all surveys, is subject to the existence of confidence intervals and statistical sampling error. While error caused by statistical sampling is only one type (others include sample selection bias, social desirability bias, etc), the calculation of this error is important. This survey, like all survey instruments, is subject to sampling error due to the fact that all households in the area were not interviewed. The sampling error is calculated as follows:

$$\text{Sampling error} = \pm (1.96)((P(1-P))/N)^{1/2}$$

Where P is the percentage of responses in the answer category being evaluated and

N is the total number of persons answering the particular question. Turning to the t -distribution and a two-tailed test, the sampling error provides that the probability is 95 percent that the results fit within this range.

This report presents values that are bounded by this 95 percent confidence interval estimate. Thus some answers provide a plus/minus range. However, due to the nature of Likert scaling, this type of probability estimation is not applied to all univariate answers. While results can be estimated, their meaning (in regards to Likert scaling) lacks decisiveness.

For example, suppose you had the following distribution of answers to the question, "Should the state spend more money on road repair even if that means higher taxes?" Assume 1,000 respondents answered the question as follows:

YES	- 47%
NO	- 48%
DON'T KNOW	- 5%

The sampling error for the "YES" percentage of 47 percent would be

$$\text{Sampling error} = \pm (1.96) \frac{\sqrt{(47)(53)}}{\sqrt{1,000}} = \pm 3.1\%;$$

for the "NO" percentage of 48% it would be

$$\pm (1.96) \frac{\sqrt{(48)(52)}}{\sqrt{1,000}} = \pm 3.1\%;$$

and for the "DON'T KNOW" percentage of 5% it would be

$$\pm (1.96) \frac{\sqrt{(5)(95)}}{\sqrt{1,000}} = \pm 1.4\%;$$

\| 1,000

In this case we would expect the true population figures to be within the following ranges:

YES	43.9% - 50.1% (i.e., 47% \pm 3.1%)
NO	44.9% - 51.1% (i.e., 48% \pm 3.1%)
DON'T KNOW	3.6% - 6.4% (i.e., 5% \pm 1.4%)

Chi Square Test

In its simplest fashion, the chi square test is used to test the difference between two independent proportions. In one instance, this report considers the difference between groups in their view on affordable single family housing (Are singly family home prices reasonable?). This question was exposed to a chi square test, which evaluates the similarities/differences in answers among different groups answering a given question. Given the degrees of freedom, given, a chi-square value exceeding 37.652 prompted a rejection of the null hypotheses that all groups answered the question in the same way.

The chi-square test is commonly used in political polling. Suppose, for example, a pollster is interested in knowing whether males and females differ in their endorsement of a candidate. The null hypothesis is that females and males are just as likely to support a candidate. If 33 percent of the 100 males interviewed support the candidate while 17 percent of the females support the candidate, it is important to test whether the difference was due to chance alone.

The chi-square test provides a simple mechanism to test whether certain group's

responses fall outside the expected range, given the group's response. This study uses a standard significance level of 5 percent. This significance level makes the statement that sampling variation is an unlikely explanation of the discrepancy between the null hypothesis and the sample values.

Questionnaire

Each randomly sampled property owner was mailed a Survey questionnaire. The questionnaire is contained in Appendix C.

Appendix B

ImplanPro and Input-Output Analysis

ImplanPro is an input-output analysis computer software package. Input-output analysis is a tool used to model the many linkages within a regional economy. ImplanPro is designed to use the linkages within an economy to conduct an economic impact analysis. More specifically, it enables a researcher to forecast the degree to which the regional economy will be affected given a defined change in the regional economy. Input-output analysis examines how economic factors such as output, employment, and personal income are affected by a given change in the economic environment. In this study the objective is to examine how important Geneva Lake is to the regional economy. To accomplish this task, we examine what the regional economy would look like in the absence of the Geneva Lake watershed.

The impact analysis generates economic multipliers for the regional economy. These multipliers generate three types of effects on the regional economy: direct, indirect and induced effects. The direct effect is the result of the initial change in the economic environment. In this case, we subtract \$64 million from the household sector to mimic the absence of Geneva Lake from the regional economy. The indirect effects are the result of the reduced demand for services by the household sector, which includes reduced purchases in the local economy such as cleaning supplies, food, services, etc... The reduction then creates a chain reaction within the local economy. The induced effects are the result of a reduction of local purchases by employees of businesses, etc... Accompanying a reduction in wages and salaries is a reduction in household spending. The sum of the direct, indirect, and induced effects is the total effect.

Input-output analysis is demand driven, which means that industries respond directly and indirectly to meet changes in demand. Input-output analysis is also a linear

model in which industries are assumed to exhibit constant returns to scale. This means that when demand for a good/service increases (decreases), industries respond by increasing (decreasing) production in a proportional way to meet the change in demand. The model also assumes that there are no constraints in supply and that the production of goods and services is only limited by the demand for such goods and services. Input price changes are also assumed to have no effect on output. Lastly, the inputs required for production are assumed to be fixed. The implication of this is that while changes in the economy affect the output of industries, the mix of inputs required for production is not changed.

For a further explanation and discussion about ImplanPro and Input-Output analysis see the following references:

Eiswerth, M., R. Kashian, M. Skidmore. 2005. What Is the Value of a Clean and Healthy Lake to a Local Community?, prepared by the Fiscal and Economic Research Center at the University of Wisconsin-Whitewater.

MIG. (2000). IMPLAN Pro Version 2.0. Available from the Minnesota IMPLAN Group, Inc., 1940 S. Greeley Street, Suite 201, Stillwater, MN 55082.

MIG. (2000). IMPLAN Pro Version 2.0. Minnesota IMPLAN Group, Inc., 1940 S. Greeley Street, Suite 201, Stillwater, MN 55082.

Murray, M., K. Barbour, B. Hill, and S. Stewart. 2003. Economic Effects of TVA Lake Management Policy in East Tennessee, prepared by the Center for Business and Economic Research at the University of Tennessee.

Shapiro, L., and H. Kroll. 2003. Estimates of Select Economic Values of New Hampshire Lakes, Rivers, Streams and Ponds, a report prepared for the New Hampshire Lakes Association.

APPENDIX C

Questionnaire