

# **The Iowa Lakes Valuation Project: Summary and Findings from Year One**

By

Christopher D. Azevedo, Kevin J. Egan, Joseph A. Herriges, and Catherine L. Kling\*

\*Department of Economics, Iowa State University, Ames, Iowa.

For questions or comments about the contents of this report, please contact Catherine Kling, 568D Heady Hall, Iowa State University, Ames, IA 50011-1070; Ph: 515-294-5767; Fax: 515-294-6336; E-mail: [ckling@iastate.edu](mailto:ckling@iastate.edu).

August 27, 2003

## INTRODUCTION

As increased attention is focused on the issue of water quality in the state of Iowa, policy makers must grapple with the pressures of balancing federal water quality requirements, tight conservation budgets, and citizen concern for environmental preservation and restoration of Iowa's water resources. Efforts to improve water quality typically entail significant costs, either in the form of state resources to fund cleanup efforts or private costs associated with altering land uses, farming practices, municipal treatment facility expansions, or other investments.

In order to make good policy decisions regarding water quality, it is important to understand the physical processes that affect water quality. Leading the effort to gather physical information about water quality in the state is the Iowa State University Limnology Laboratory. Dr. John Downing and other members of the ISU Limnology Laboratory are currently working on a five-year project designed to provide the Iowa Department of Natural Resources with a lake database that will include water chemistry, biological analysis, and watershed geographic information systems (GIS) data for 132 of Iowa's principle recreation lakes.

Another important component of making good policy decisions regarding water quality is to understand the degree to which citizens value improvements in water quality and are willing to make tradeoffs to enjoy improved quality in Iowa's lakes. Since water quality improvements may be costly, it is necessary to know how much benefit people obtain from these improvements if society is to answer the question of whether it is "worth it" to undertake these projects. In many cases the question will be one of degree: that is, how much improvement in water quality should we strive for? What amount of improvement in water quality is simply too expensive, and would thereby require foregoing other public investments that are more valuable to the citizenry?

To provide this information, researchers from the Iowa State University Department of Economics and Center for Agricultural and Rural Development with funding from the Iowa Department of Natural Resources and the U.S. Environmental Protection Agency, have initiated an ambitious, multi-year study effort termed The Iowa Lakes Valuation Project. The project was designed to complement the research being done by the ISU Limnology Laboratory by providing important additional information

for the same set of recreational lakes in Iowa and overlapping with the final four years of the Limnology Laboratory's project, both of which will continue until 2005.

#### AN OVERVIEW OF THE IOWA LAKES VALUATION PROJECT

The Iowa Lakes Valuation Project is an economic study of the use and value Iowan's place on water quality in Iowa lakes. The data for this study will be collected over a four-year period through the implementation of annual surveys to a random sample of Iowa residents. By gathering recreational use information and associated information over a four-year period from the same individuals, we will generate a unique panel data set that will be used to investigate the responsiveness of use patterns to objective measures of water quality and to test the consistency of values over time.

Using this data, we will employ standard environmental economic concepts and methods to provide estimates of the value that Iowan's place on their water resources. The economic value of water quality improvements in Iowa lakes will be measured using the standard concept of maximum willingness-to-pay. The maximum amount that an individual is willing to pay for an environmental good measures the value they place on that good in that it represents the value of other goods and services they are willing to forgo in order to acquire or preserve the environmental resource. The maximum willingness-to-pay (WTP) is a standard concept of economic value for any type of good, environmental or otherwise, and thus can appropriately be used by policy makers and analysts for comparisons in deciding how to spend limited public monies.

The first year of data collection for the study focused on providing a baseline of information on use and attitudes towards water quality measures and economic development. The second through fourth years of data collection will also include collecting information on use, but will additionally provide scenarios to survey respondents to elicit their willingness to pay for quality improvements.

To gather data for the first year of the Iowa Lakes Survey Project, researchers administered a survey entitled "Iowa Lakes Survey 2002" to a large sample of Iowans. As noted, this survey was the first in a series of four annual surveys, which will be used to gather recreational usage data, opinion data, and information about how Iowans value

lakes in the state. In the remainder of this report, we summarize the data and initial findings from the first year of the study.

## SURVEY DESIGN AND IMPLEMENTATION

In this section of the report, we provide an overview of the procedures used in designing the first year of the Iowa Lakes Survey, the implementation procedures used to administer it, and the final survey response rates for the first year.

### *The Structure of the Survey*

The Iowa Lakes Survey was divided into three sections. In the first section, respondents were asked about their household lake visitation patterns during the years of 2001 and 2002 as well as planned visits for 2003. Respondents were asked to provide the number of single-day and overnight trips taken to 132 lakes in Iowa, and were provided with a map showing the names and location of the lakes. Additionally, respondents were asked to indicate the number of trips they had taken, or planned to take, to lakes in the states of Illinois, Minnesota, Missouri, Nebraska, South Dakota, and Wisconsin, as well as to the Missouri and Mississippi Rivers. Respondents were asked about the activities that they, or members of their household, typically participate in during lake visits, as well as how frequently they swim in Iowa lakes.

In the second section of the Iowa Lakes Survey, respondents were asked about the lake features that were important to them as well as the importance of lakes to their local community. In particular, they were asked about the importance of various lake characteristics such as water quality, proximity of the lake to their residence, and activities available at the lake. They were also asked about the importance of various lake attributes such as water clarity, lack of water odor, and safety from bacteria. The last set of questions in this section asked respondents about the role that lakes play in their local community.

In the final section of the Iowa Lakes Survey, socioeconomic information was gathered from respondents. Information gathered in this section included age, gender, and income. Respondents were also provided a place for comments. A complete copy of the 2002 Iowa Lakes Survey is available on the CARD web site.

### *Developing the Survey Instrument*

The initial draft of the survey instrument was developed through a series of meetings with members of the ISU Limnology Laboratory as well as members of the Iowa Department of Natural Resources. Focus group participants, made up of residents of Ames, Iowa, provided input into the accuracy of the questions and ease of responding. Comments from the participants were used to refine the survey, and the revised version was pre-tested on a sample of Iowa residents.

A random sample of 300 Iowa residents was drawn for use in the survey pre-test. Survey Sampling Inc., a professional sampling firm, provided a random sample of names from the 99 county population of all Iowans. The first survey mailing took place in October of 2002. Survey recipients were sent a package that included a cover letter, the Iowa Lakes Survey, a map showing Iowa Lakes, a payment claim form, and a return envelope. Respondents were assured that their responses would be completely confidential. They were asked to return the survey within two weeks, and were told they would be paid \$20 for a completed survey. Payment was made by Iowa State University check.

Respondents were given the option to either fill the survey out by hand or to complete the survey online. Each respondent's cover letter contained a user-ID and password as well as the web address for the Internet survey. The on-line version of the survey gathered exactly the same information as the paper version of the survey and was structured so that the layout was similar.

Of the 300 pre-test surveys sent, nine were returned by the post office as undeliverable, five were completed online, and 135 were returned by mail, resulting in a 48% response rate among deliverable surveys.

As the pre-test surveys were returned, it became clear that the question that gathered information about the number of trips the respondent took would have to be revised slightly. Many respondents did not realize that they were being asked to provide a number, but instead placed a check mark next to the lakes they had visited. To address the problem, we highlighted the fact that the respondent was being asked for a number. This revision had the intended affect, as the final survey did not contain many cases of this erroneously completed visitation information.

### *Administering the Final Survey*

The final survey was mailed to a total of 8000 Iowa residents in November of 2002. Again, Survey Sampling Inc. was contracted to provide a random sample of 8000 names drawn randomly from the 99 county population of all Iowans. A slightly different procedure was followed for the final survey than for the pre-test: the initial package was sent, those who had not returned the survey after three weeks were sent a reminder post card, and those who still had not returned the survey after ten weeks were sent another survey package. The mailing of the second survey package was delayed until January of 2003 in order to let the holiday season pass. As with the pre-test, survey recipients were given the option of filling the survey out online or returning the paper survey.

Of the 8000 surveys sent, 830 were undeliverable and 52 were returned because the addressee was deceased. 352 respondents chose to fill the survey out online while 4071 respondents chose to return the survey by mail, resulting in a 62% response rate among deliverable surveys.

### *Non-response Survey*

In order to determine if non-responding households were similar to or different from responding households, a telephone survey based on the original mail survey, was developed. A random sample of 531 non-responding households was selected for the non-response telephone survey.

Trained and supervised interviewers conducted the surveys during April and May of 2003. A standard call rotation procedure was implemented to ensure that each phone number received a minimum of 12 call attempts over a two-week time period. The calls were spread over different days of the week as well as times of the day. Those respondents participating received an incentive of \$8, as did the mail survey responders.

Of the 531 selected, 297 provided survey information. Five households were reached but interviews not completed because of health or hearing difficulties, and 93 households refused to participate. There were 55 households where no one was reached, and 81 households that could not be located. Considering the 81 households that could not be located as “undeliverable”, the overall response rate for completed interviews was 66%. The cooperation rate (the response rate of those households reached) was 75%.

In order to keep the telephone interview brief, not all of the questions from the mail survey were asked. The interviewer did ask the non-respondents if anyone in their household had visited any lakes in Iowa in 2002 and if so, which ones and how many total trips did they take to each. They were then asked if they had taken any trips to the Mississippi or Missouri River, or if they had taken any trips to lakes in neighboring states. The last questions asked if they owned a home either on a lake in Iowa, or outside of the state. Finally, socioeconomic information was gathered from each non-respondent, mirroring the information collected in the mail survey.

Table 1 compares the mail survey with the non-response telephone survey. On average, the non-respondents were 10% less likely to take at least one trip to an Iowa Lake. They were also less likely to visit a lake in a neighboring state, but more likely to visit the Mississippi or Missouri Rivers. Although the non-respondents were only 10% less likely to take at least one trip to an Iowa lake, on average they took significantly less total trips in 2002; slightly more than half as many trips as the mail survey respondents.

**Table 1: Comparing the mail survey with the non-response telephone survey**

Year 2002	Mail Survey	Non-response Telephone Survey
Percentage of respondents who took at least one trip to:		
Iowa Lakes	66.6 %	56.6 %
Mississippi/Missouri River	27.0 %	35.1 %
Lakes outside of Iowa	30.0 %	22.6 %
Average number of day trips	9.8	–
Average number of overnight trips	1.9	–
Average number of total trips	11.7	6.3

To accurately reflect the population of Iowans, the following survey results have incorporated the information from both the mail survey and the non-response telephone survey. However more information was gathered from the mail survey, consequently

those tables and figures for which only the mail survey responses were used will be noted.

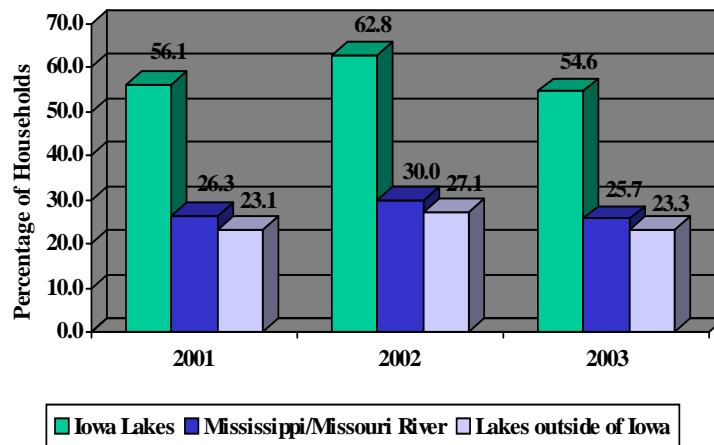
## SURVEY RESULTS

In this section, summary statistics for the Iowa Lakes Survey will be provided. Particular attention will be paid to the reported usage patterns as well as knowledge and attitudes towards lakes and water quality.

### *Usage of Lakes in Iowa and Other States*

On average, a large percentage of the respondents reported taking, or planning, at least one trip during 2001, 2002, and 2003. Figure 1 shows the percentage of the sample that reported taking trips to lakes in Iowa, the Mississippi and Missouri Rivers, and lakes outside of Iowa. Approximately 60% of respondents reported taking (or planning) at least one trip to a lake in Iowa, between 20% and 30% reported taking a trip to the Mississippi or Missouri Rivers, and between 20% and 30% reported taking a trip to a lake in another state. It is important to note that these numbers include respondents who took either a single-day trip or a multi-day trip (defined simply as a trip lasting more than one day).

**Figure 1: Percentage of respondents who took at least one trip**



Iowans report a high usage of lakes in the state of Iowa. Figure 2 shows the average number of single-day trips taken in 2001 and 2002, as well as the number of trips respondents plan to take in 2003, to lakes in the state of Iowa, the Mississippi and Missouri Rivers, and lakes outside the state of Iowa. The average number of trips taken



(or planned) to Iowa lakes is approximately 8 trips for all three years, while the number of trips to the Mississippi and Missouri Rivers is slightly less than two trips each year. The average number of trips taken (or planned) to lakes outside Iowa is less than one per year.

**Figure 2: Average number of day trips**

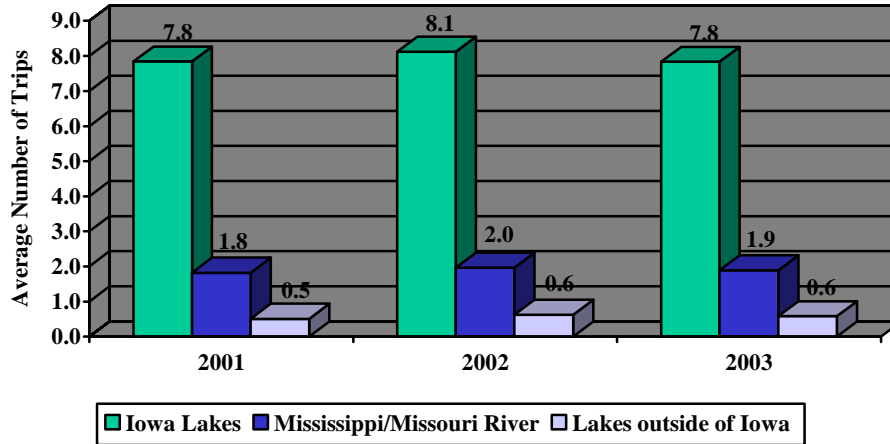
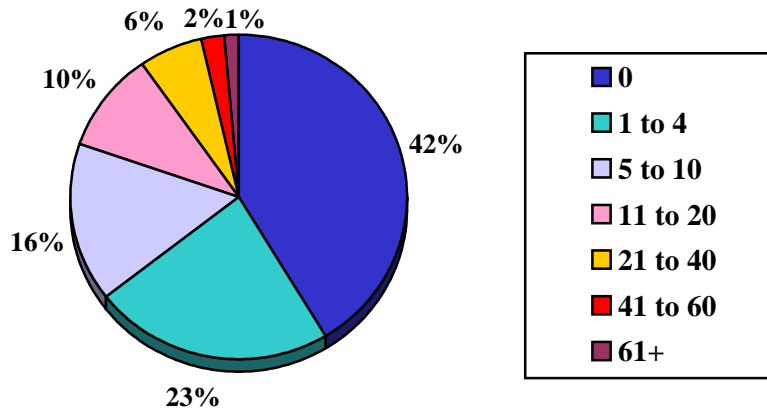


Figure 3 shows the distribution of single-day trips taken to lakes inside the state of Iowa during 2002. Approximately 42% of respondents reported taking zero trips, 23% reported taking one to four trips, and 16% reported taking five to ten trips. A small percentage reported taking a large number of single-day trips (more than 60).

**Figure 3: Distribution of single-day trips to Iowa lakes (2002)**



Iowans also reported taking a moderate number of multi-day trips. Figure 4 shows the average number of overnight trips taken, or planned, to lakes in Iowa, the Mississippi and Missouri Rivers, and lakes outside of Iowa. On average, respondents took (or planned) approximately one and a half to two overnight trips to lakes inside the state of Iowa, and less than one trip to the Mississippi and Missouri Rivers and to lakes outside of the state.

**Figure 4: Average number of overnight trips**

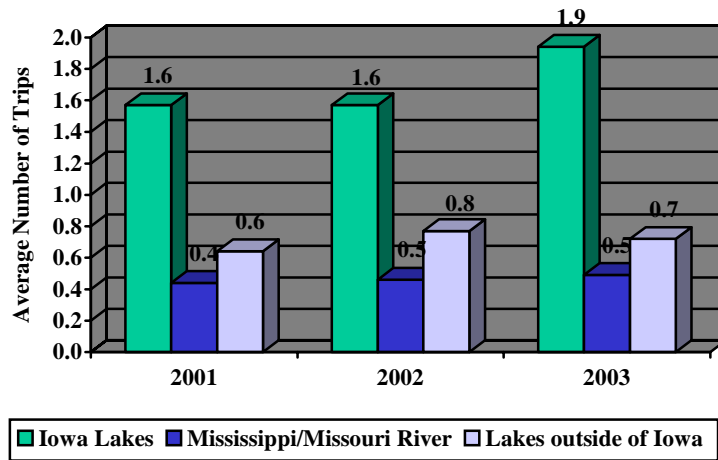


Figure 5 shows the distribution of overnight trips to Iowa lakes in 2002. About 80% of respondents reported taking zero overnight trips, 9% reported taking one or two overnight trips, and smaller percentages reported taking larger numbers of overnight trips.

**Figure 5: Distribution of overnight trips to Iowa lakes (2002)**

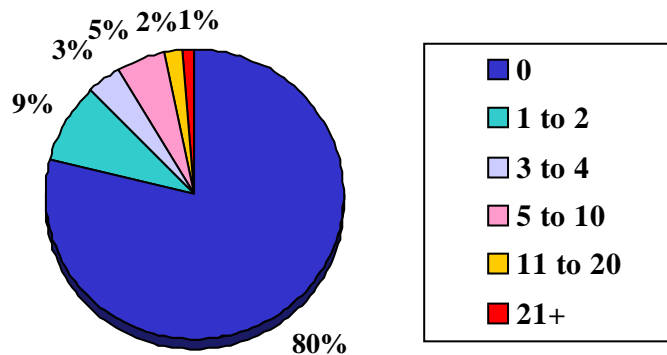


Figure 6 shows the breakdown of the out of state trips taken by Iowa residents. Shown are the percentages of households who took trips to lakes in Illinois, Minnesota, Missouri, Nebraska, South Dakota, and Wisconsin in 2002. Lakes in Minnesota were the most popular destination for Iowa residents, with lakes in Missouri and Wisconsin second and third respectively.

**Figure 6: Out of state trips (2002)**

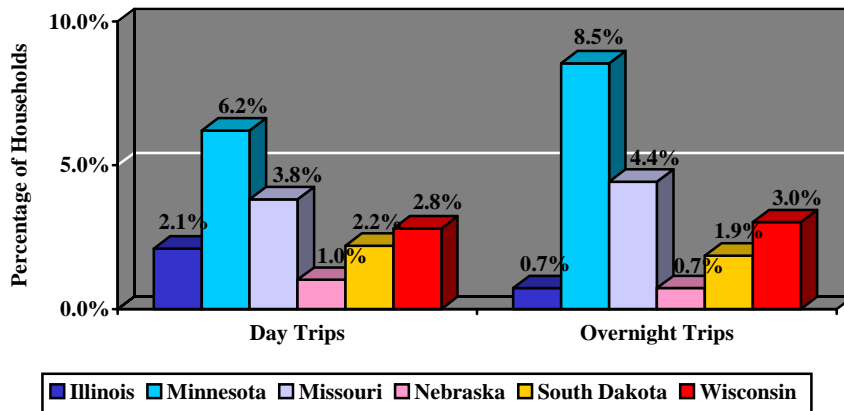
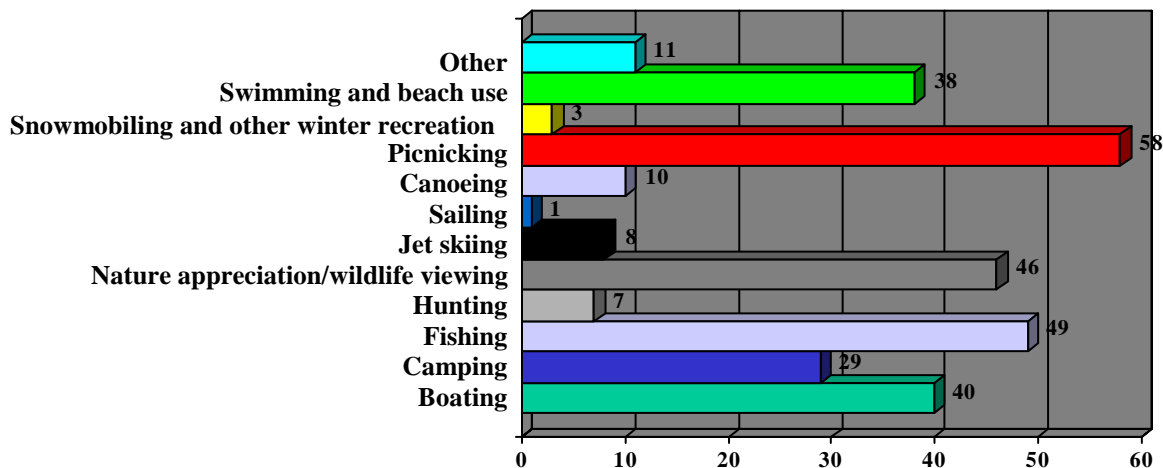


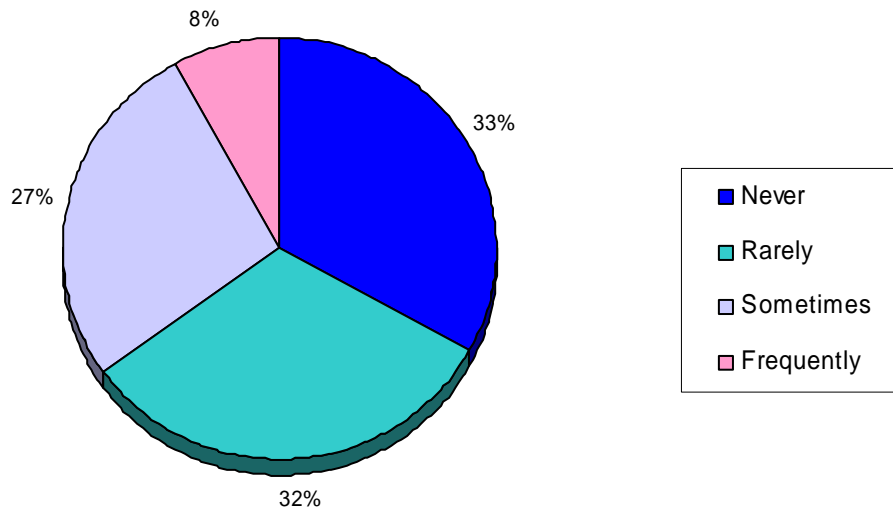
Figure 7 shows the activities that respondents or members of their family typically participate in during lake visits. Respondents were asked to indicate all activities that they engage in during a typical trip. Picnicking was the most popular activity with approximately 58% of the sample indicating it. Fishing, nature appreciation, boating, swimming/beach use, and camping were also popular activities.

**Figure 7: Activities engaged in by respondents**



Additionally, respondents were asked to indicate how frequently they or members of their family swim in Iowa lakes. Figure 8 shows that among respondents who indicated taking at least one trip to a lake, 33% indicated that they never swim in Iowa lakes, 32% indicated that they rarely swim in Iowa lakes, 27% indicated that they sometimes swim in Iowa lakes, and 8% indicated that they frequently swim in Iowa lakes.

**Figure 8: How frequently do you or your family swim in Iowa Lakes?**



The trip data gathered in the first section of the Iowa Lakes Survey can be used to examine the statewide distribution of trips taken by Iowa residents. It is useful to first divide the state of Iowa into nine zones. Figure 9 shows the zonal division of the state as well as the 132 lakes being considered in the Iowa Lakes Project.

**Figure 9: Lake zones**

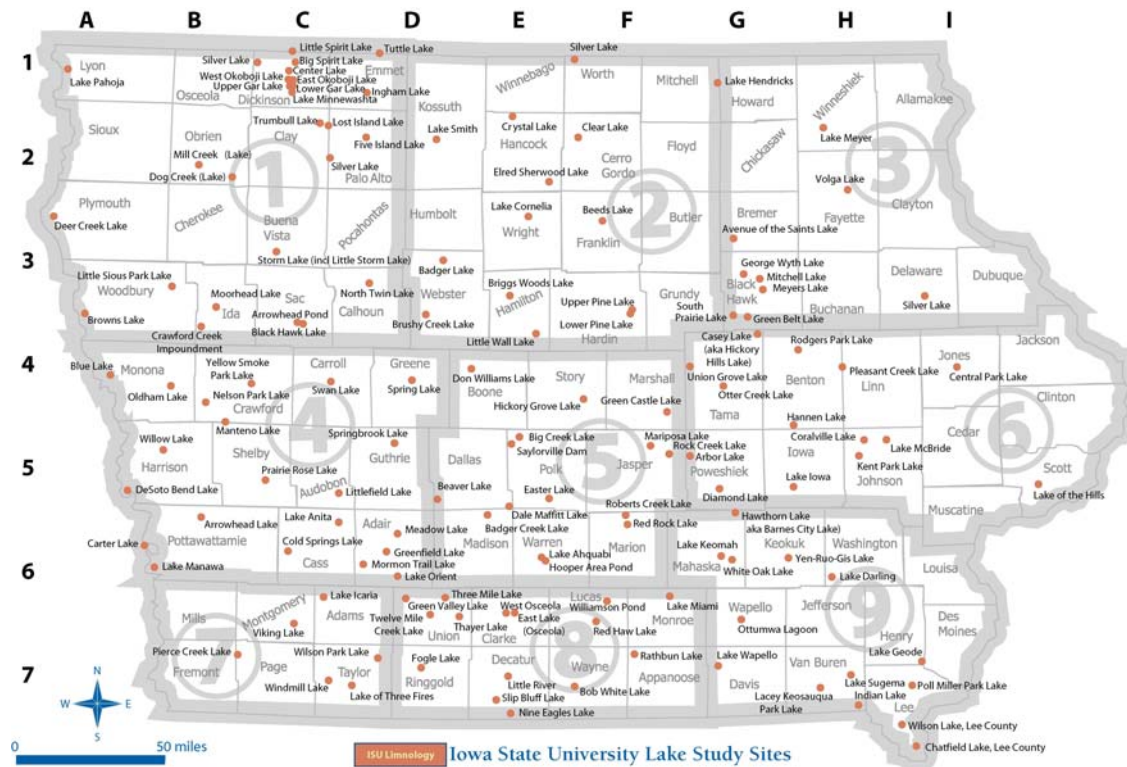


Table 2 shows the average number of trips (both single and multi-day) taken in 2002 by residents of each zone, to lakes in each of the nine zones. Not surprisingly, residents take the highest average number of trips to their zone of residence (shown in bold). For example, residents of Zone 1 took an average of 15.70 trips to lakes in Zone 1, while residents of Zone 7 took an average of 3.59 trips to lakes in Zone 7. It is also clear that when taking trips to lakes outside of their zone of residence, respondents visit nearby zones more frequently than more distant zones on average. For example, residents of Zone 3 take a higher average number of trips to lakes in Zones 2 and 6 than to lakes in the more distant zones.

By summing over zones, the average total number of trips taken to lakes in the state of Iowa by residents of each zone is obtained. Average totals for residents of each zone are: Zone 1: 17.34 trips, Zone 2: 11.98 trips, Zone 3: 4.67 trips, Zone 4: 12.26 trips, Zone 5: 8.78 trips, Zone 6: 6.59 trips, Zone 7: 7.77 trips, Zone 8: 18.20 trips, Zone 9: 8.52 trips. In other words, residents of Zone 1 took an average of about seventeen trips to lakes in Iowa, while residents of Zone 4 took a little more than twelve trips on average.

**Table 2: Average number of trips taken in 2002 by residents of each zone**

	Zone 1 Residents	Zone 2 Residents	Zone 3 Residents	Zone 4 Residents	Zone 5 Residents	Zone 6 Residents	Zone 7 Residents	Zone 8 Residents	Zone 9 Residents
Lakes in zone 1	<b>15.70</b>	2.34	0.26	2.19	0.95	0.30	2.29	0.35	0.11
Lakes in zone 2	0.24	<b>8.41</b>	0.36	0.06	0.57	0.08	0.02	0.31	0.04
Lakes in zone 3	0.00	0.23	<b>2.74</b>	0.01	0.07	0.05	0.01	0.00	0.02
Lakes in zone 4	0.45	0.11	0.01	<b>9.07</b>	0.24	0.08	1.14	0.60	0.06
Lakes in zone 5	0.13	0.54	0.15	0.31	<b>6.04</b>	0.26	0.10	1.92	0.85
Lakes in zone 6	0.73	0.12	0.83	0.04	0.18	<b>5.28</b>	0.01	0.04	0.66
Lakes in zone 7	0.03	0.01	0.05	0.36	0.03	0.02	<b>3.59</b>	0.46	0.02
Lakes in zone 8	0.03	0.17	0.20	0.22	0.60	0.16	0.60	<b>14.00</b>	1.12
Lakes in zone 9	0.02	0.06	0.07	0.00	0.09	0.35	0.01	0.50	<b>5.64</b>

It is also instructive to look at the average number of trips taken to lakes outside the state of Iowa as well as to the Missouri and Mississippi Rivers. Table 3 shows the average number of trips taken to a variety of locations in 2002 by residents of each zone. The numbers exhibit the expected patterns. For example, residents of Zones 3, 6, and 9 take a higher average number of trips to the Mississippi River than residents of other zones, while residents of Zones 1, 4, and 7 take a higher average number of trips to lakes in Nebraska than residents of other zones.

**Table 3: Average number of trips taken in 2002 by residents of each zone**

	Zone 1 Residents	Zone 2 Residents	Zone 3 Residents	Zone 4 Residents	Zone 5 Residents	Zone 6 Residents	Zone 7 Residents	Zone 8 Residents	Zone 9 Residents
Other Iowa Lakes	0.54	0.22	0.43	0.50	0.56	0.46	0.35	0.15	0.80
Lakes in Illinois	0.01	0.01	0.11	0.02	0.05	0.18	0.01	0.07	0.08
Lakes in Minnesota	1.00	1.04	0.54	0.35	0.65	0.45	0.08	0.16	0.14
Lakes in Missouri	0.10	0.12	0.12	0.33	0.45	0.13	0.44	0.72	0.78
Lakes in Nebraska	0.08	0.01	0.01	0.27	0.02	0.01	0.07	0.00	0.02
Lakes in S. Dakota	0.53	0.17	0.01	0.26	0.04	0.02	0.03	0.06	0.02
Lakes in Wisconsin	0.07	0.12	0.34	0.09	0.13	0.24	0.03	0.06	1.23
Missouri River	1.21	0.09	0.04	0.89	0.10	0.10	0.50	0.07	0.28
Mississippi River	0.35	0.49	4.38	0.09	0.33	4.65	0.32	0.28	4.98
Other lakes and rivers	0.51	0.39	0.46	0.23	0.62	0.68	0.30	0.20	1.07

### Opinions of the Respondents

Respondents were also asked a series of questions designed to gather information about how they choose a lake for recreation, what characteristics of a lake are important to them, and how important lakes are to their local community. Non-respondents were not asked these questions, therefore the summary responses reported below reflect only the original survey respondents.

Figure 10 shows the results of a question that asked respondents to allocate 100 importance points to a number of factors they might consider when choosing a lake for recreation. They were told to indicate the importance of each factor by allocating their 100 points among the items on the list. To indicate one item was more important to them than another, they were asked to allocate more points to it. The average point allocation is shown. Respondents indicated that water quality was the most important factor they consider when choosing a lake for recreation, with proximity of the lake and park facilities also being relatively important. In contrast, activities near the lake or town are not particularly important in their choice of a lake site.

**Figure 10: Average allocation of importance points to factors important in choosing a lake for recreation**

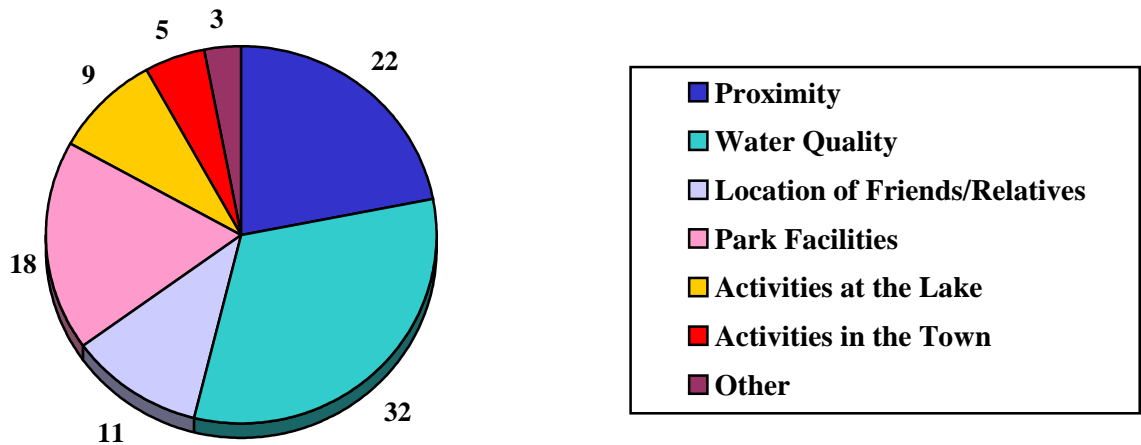
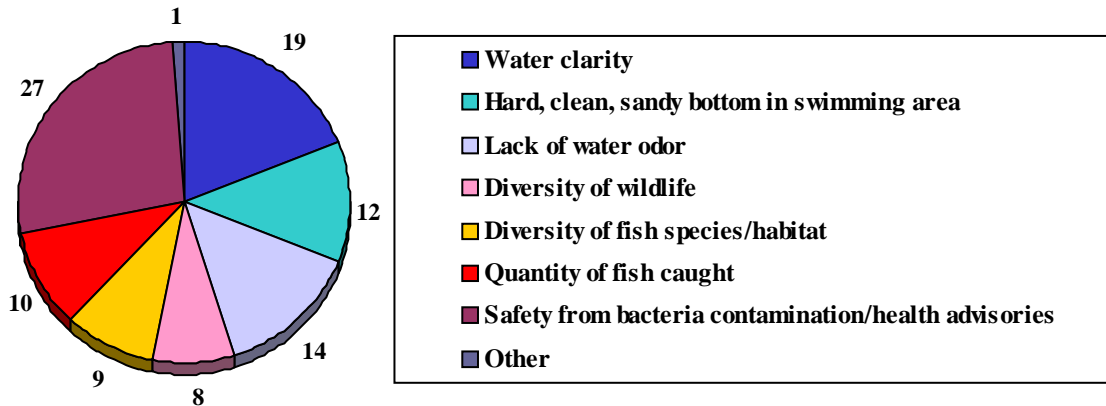


Figure 11 shows the results of a question that asked respondents to allocate 100 importance points to a number of lake characteristics that might be important to them. Again, the average point allocation is shown. Respondents indicated that safety from bacteria contamination was the most important lake characteristic, with water clarity also

receiving a fairly large point allocation. The lack of odor and the presence of a hard, clean, sandy bottom in swimming areas are also important to some respondents.

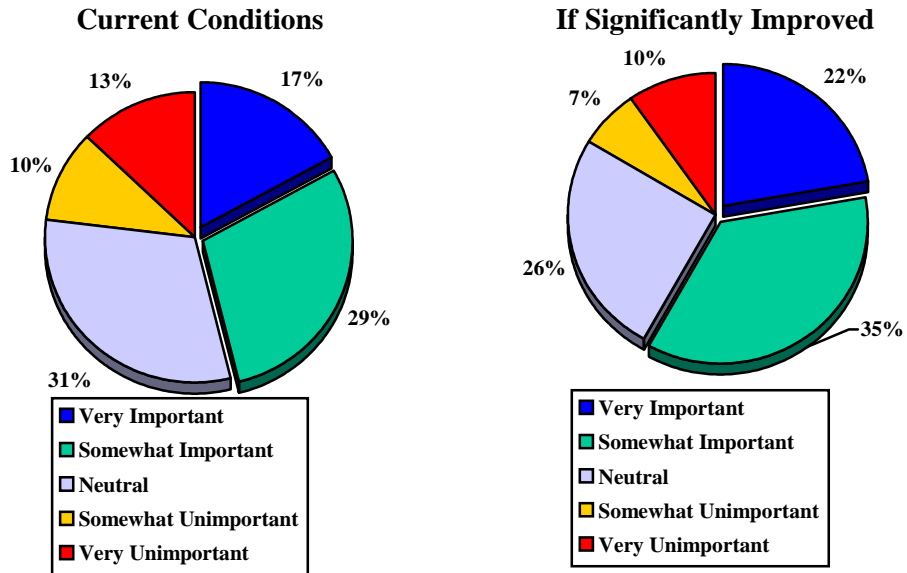
**Figure 11: Average allocation of importance points to lake characteristics**



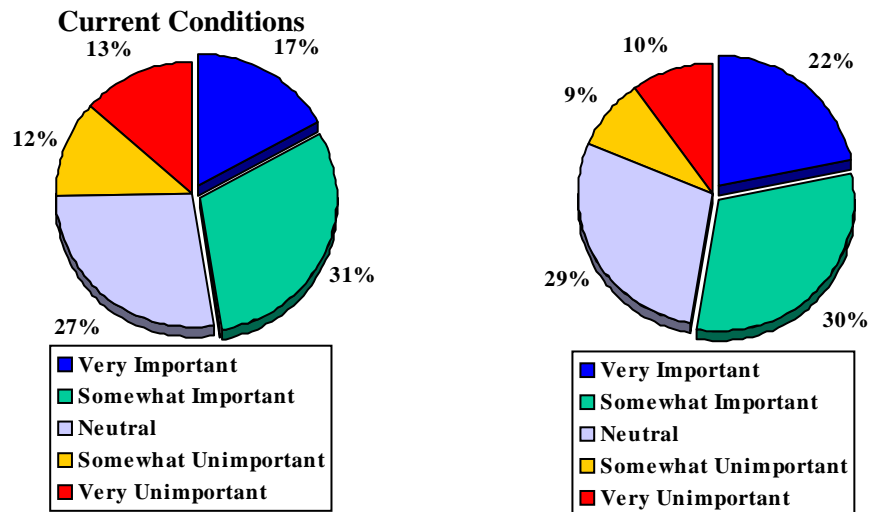
Respondents were also asked to consider the lake closest to their permanent residence and indicate how important that lake was to their local community in terms of various factors that relate to the overall quality of life of the residents. Respondents were first told to consider the lake in its **current condition** and asked how important it was to (1) the economic vitality of their community, (2) making their community an interesting and vibrant place, (3) retaining the interest of young people to remain in their community or in attracting prospective residents to their area, (4) area employers' ability to retain and or attract a skilled workforce, and (5) encouraging corporate decision makers to consider their area for establishing a business or expanding an existing industry. Respondents were then told to consider the importance of the lake if the water quality was **significantly improved** and asked the same set of questions. Figures 12 through 16 show the average responses for each of the five questions.



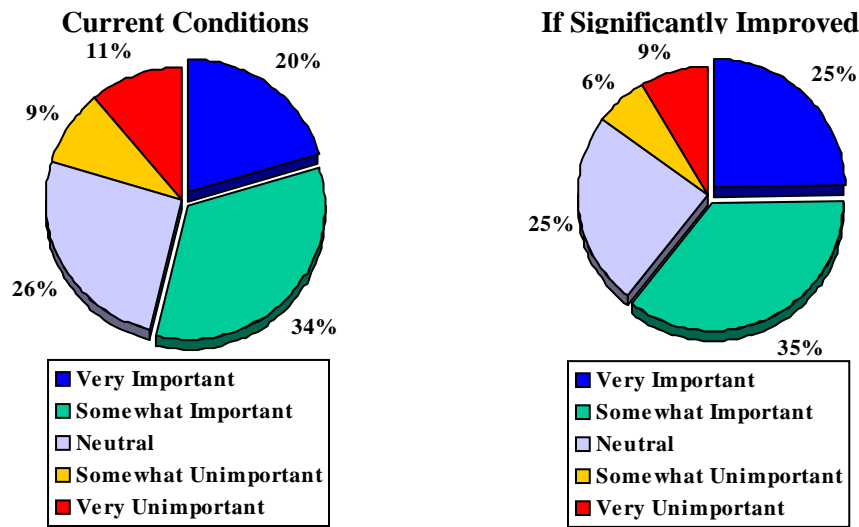
**Figure 12: How important is the presence of the lake nearest your permanent residence to the economic vitality of your community?**



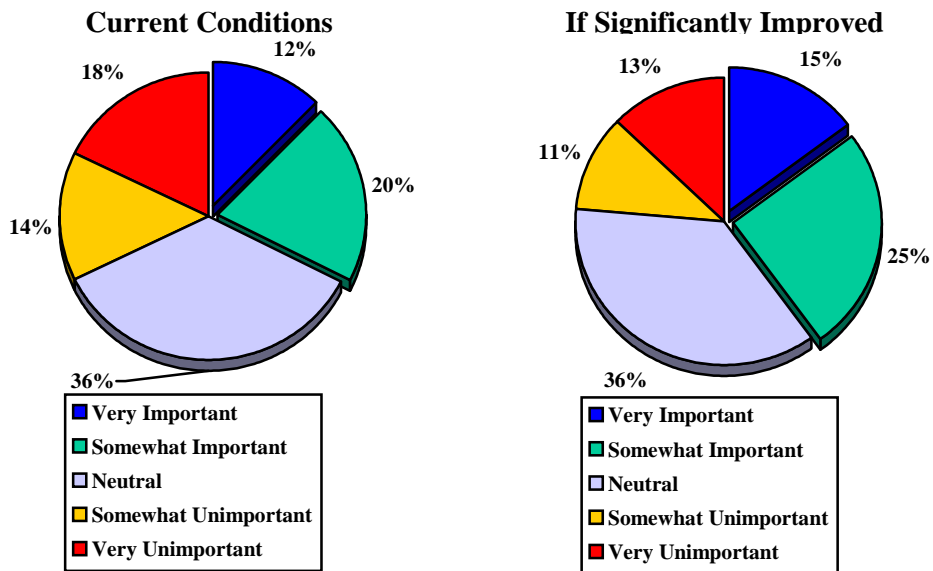
**Figure 13: How important is the presence of the lake nearest your permanent residence to making your community an interesting and vibrant place?**



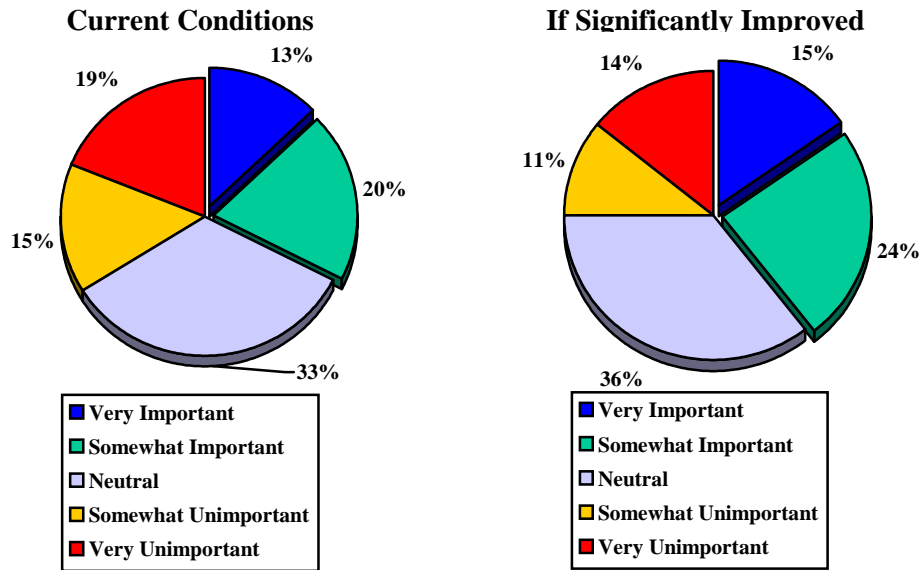
**Figure 14: How important is the presence of the lake nearest your permanent residence to retaining the interest of young people to remain in your community or in attracting prospective residents to your area?**



**Figure 15: How important is the presence of the lake nearest your permanent residence to area employers' ability to retain and or attract a skilled workforce?**



**Figure 16: How important is the presence of the lake nearest your permanent residence to encouraging corporate decision makers to consider your area for establishing a business or expanding an existing industry?**

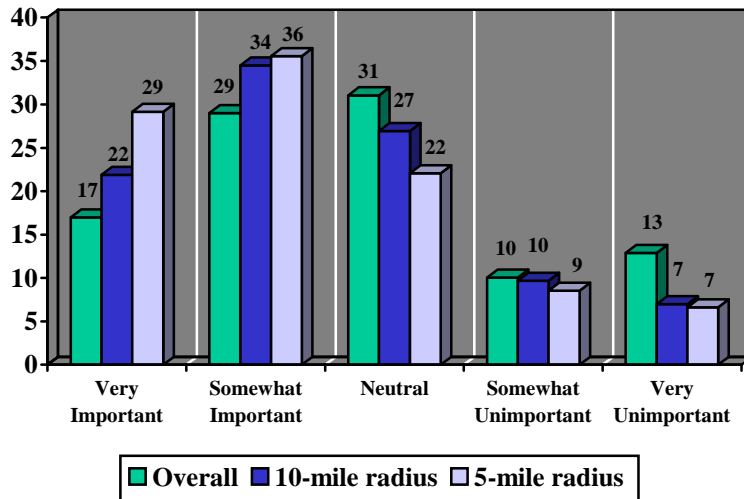


While all of these responses indicate that respondents feel that these various measures of community development and vitality would be improved if the water quality at the lake were significantly improved, the expected change is generally modest.<sup>1</sup>

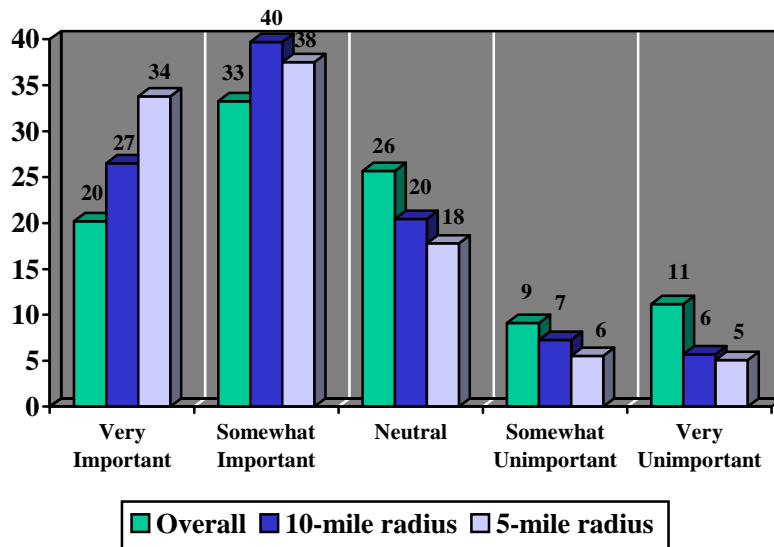
The data from these questions can also be summarized according to the distance from the respondent’s home to the nearest lake. Figures 17 through 21 compare the distribution of responses from three groups: (1) overall, (2) respondents who live within 10 miles of a lake, and (3) respondents who live within five miles of a lake, for the lake in its current condition.

<sup>1</sup> This modest expected change is also observed when considering only respondents who live within a five-mile radius of the nearest lake.

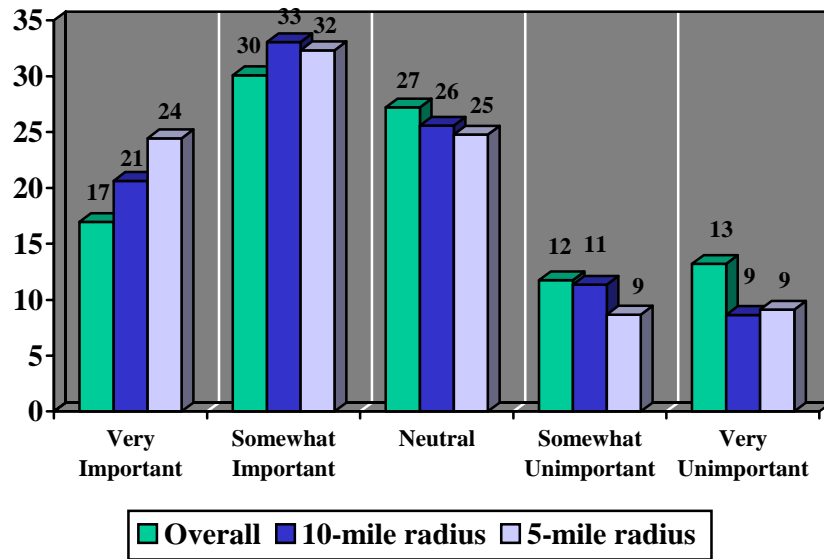
**Figure 17: In its current condition, how important is the presence of the lake nearest your permanent residence to the economic vitality of your community?**



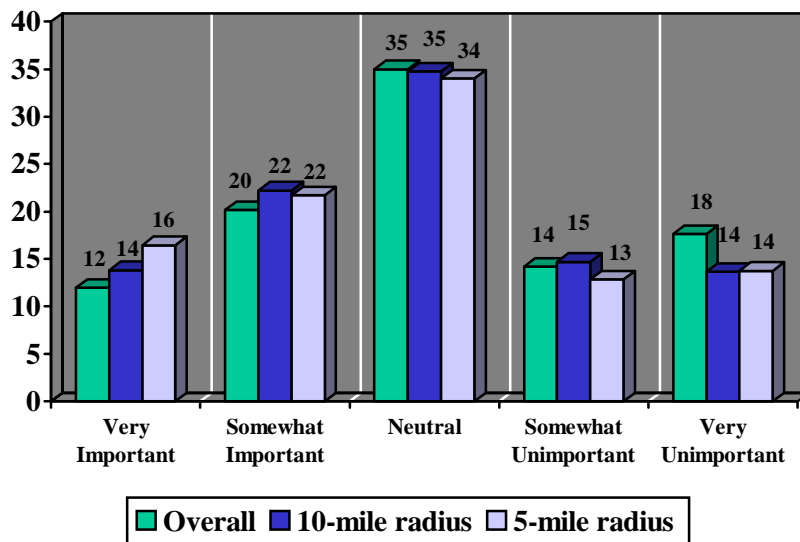
**Figure 18: In its current condition, how important is the presence of the lake nearest your permanent residence to making your community an interesting and vibrant place?**



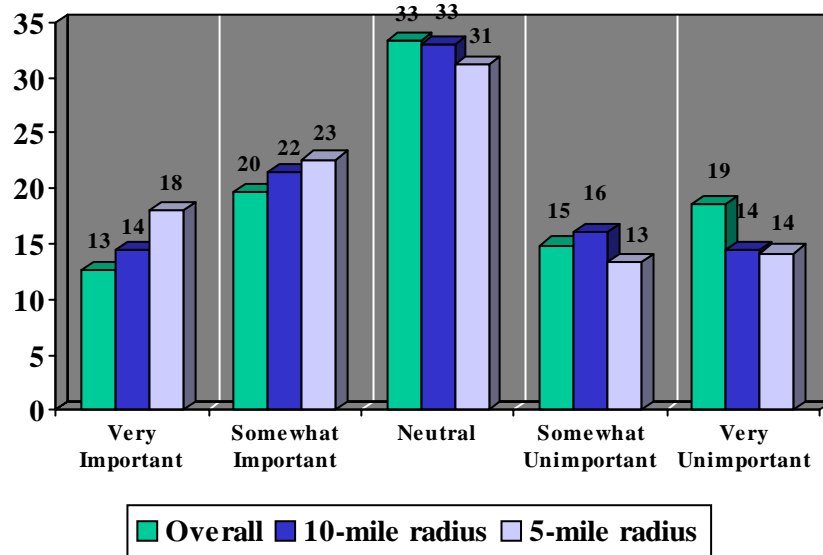
**Figure 19: In its current condition, how important is the presence of the lake nearest your permanent residence to retaining the interest of young people to remain in your community or in attracting prospective residents to your area?**



**Figure 20: In its current condition, how important is the presence of the lake nearest your permanent residence to area employers' ability to retain and or attract a skilled workforce?**

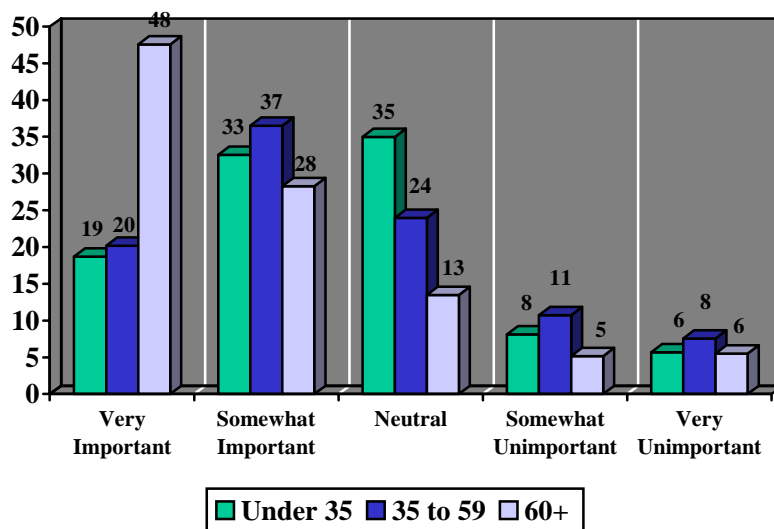


**Figure 21: In its current condition, how important is the presence of the lake nearest your permanent residence to encouraging corporate decision makers to consider your area for establishing a business or expanding an existing industry?**

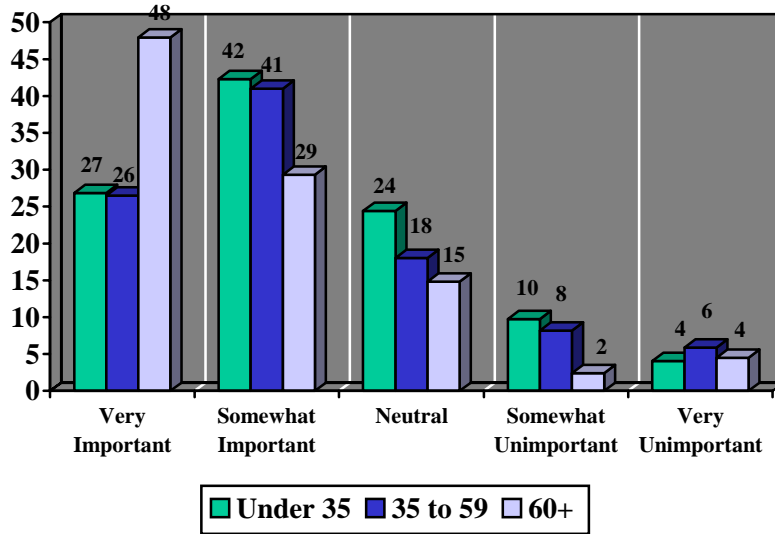


The data from these questions can also be summarized according to the age of the respondent. Figures 22 through 26 compare the distribution of responses from three groups: (1) respondents under the age of 35, (2) respondents age 35 to 59, and (3) respondents age 60 and above. Data is shown for respondents **within a five-mile radius** of the nearest lake, with the lake in its current condition. See Appendix A for other breakdowns of this data.

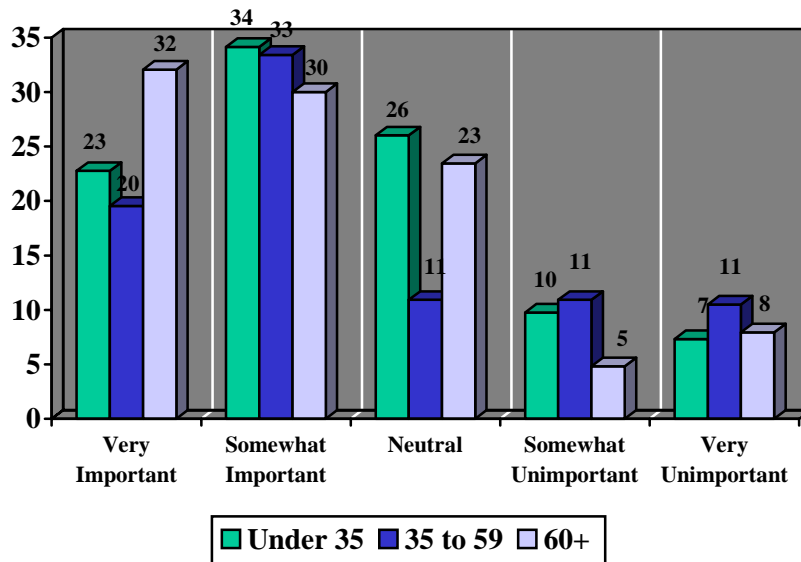
**Figure 22: In its current condition, how important is the presence of the lake nearest your permanent residence to the economic vitality of your community?**



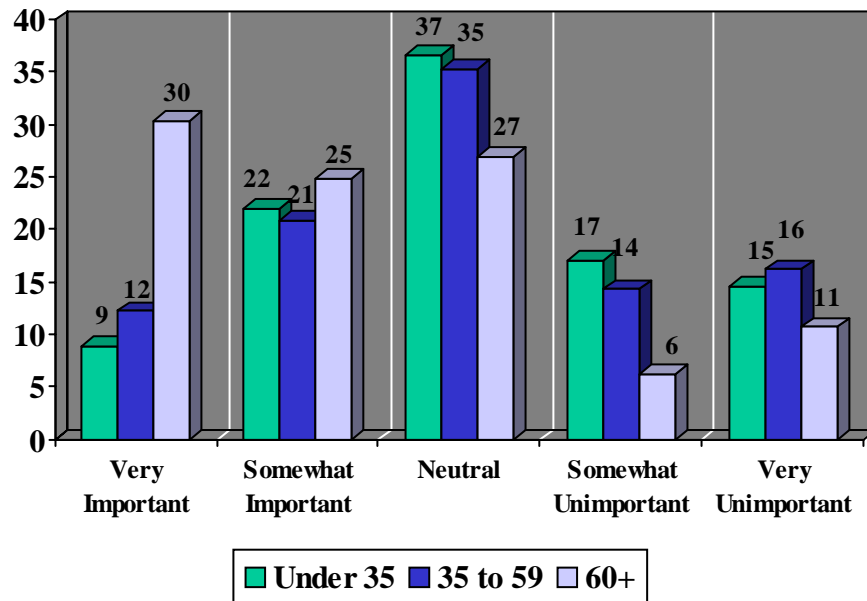
**Figure 23: In its current condition, how important is the presence of the lake nearest your permanent residence to making your community an interesting and vibrant place?**



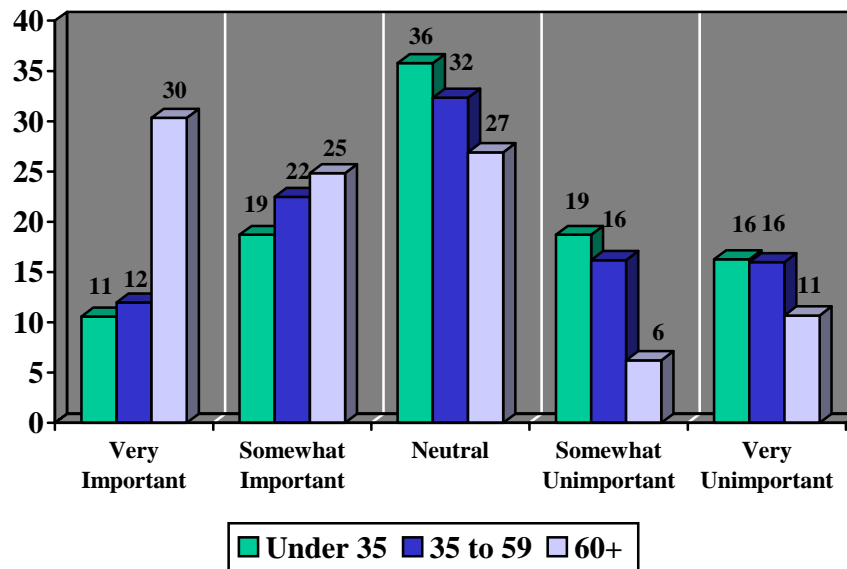
**Figure 24: In its current condition, how important is the presence of the lake nearest your permanent residence to retaining the interest of young people to remain in your community or in attracting prospective residents to your area?**



**Figure 25: In its current condition, how important is the presence of the lake nearest your permanent residence to area employers' ability to retain and or attract a skilled workforce?**



**Figure 26: In its current condition, how important is the presence of the lake nearest your permanent residence to encouraging corporate decision makers to consider your area for establishing a business or expanding an existing industry?**





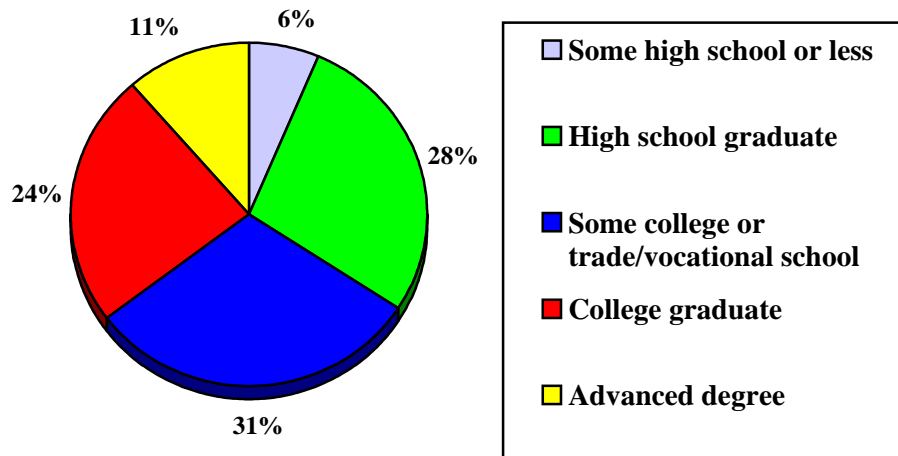
As Figures 12 through 16 show, large percentages of respondents felt that the lake was either very important or somewhat important to their community. A significant improvement in the lake led to a slightly higher percentage of respondents indicating that the lake was either very important or somewhat important to their community. Figures 17 through 21 illustrate the effect of proximity of the respondent to the nearest lake. Not surprisingly, the closer the respondent lived to a lake, the more likely they were to indicate that they felt the lake was either very important or somewhat important.

As Figures 22 through 26 show, a high percentage of respondents over the age of 60 consider the lake to play a very important or somewhat important role in their local community. The distribution of responses between the “under 35” and “35 to 59” categories is very similar.

*Socioeconomic Information*

Finally, to help readers assess these survey results, it may be helpful to know that the median income level among respondents was about \$45,000 per year, the average household size was about 2.54 people, and 68% of the respondents were male. Figure 27 shows the distribution of educational achievement of the respondents. When compared to the statistics reported in 2000 by the U.S. Census Bureau, the sample of respondents for the first year of the Iowa Lakes Valuation Project appears to be of slightly higher income (Iowa median household income was \$39,469) and composed of a higher percentage of males (males make up 49.1% of the Iowa population).

**Figure 27: Highest level of schooling completed**



Additionally, 4% of respondents indicated that they own a home on a lake in Iowa. Of those respondents who own a home on a lake in Iowa, 65% are year-round residents of Iowa. Only 2% of respondents indicated that they own a home on a lake outside of Iowa, 2% of respondents indicated that they belong to a lake protection association, 10% of respondents indicated that they were an area employer, and 11% of respondents indicated that they were involved with community development efforts and/or with making decisions that impact the entire community (eg. Chamber of Commerce, Jaycees, etc.).

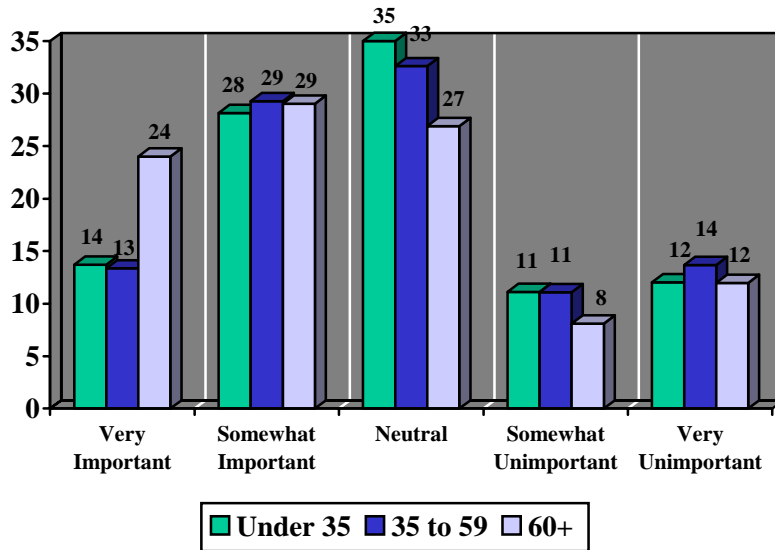
## CONCLUSIONS

This report has summarized some of the main findings from the inaugural year of the Iowa Lakes survey implemented in 2002 and 2003. Data on the use of Iowa's lakes and the values Iowan's place on water quality improvement in the state can be valuable information to legislators, conservationists, and concerned citizens as the state struggles to balance environmental concerns with other social needs. It is hoped that this information, and information gleaned from the surveys yet to be collected in years 2-4 of the Iowa Lakes Valuation Project, can be used in the effective management of our natural resources. For additional information concerning the data, survey results, or statistical methods used herein, see the Center for Agricultural and Rural Development web site at [www.card.iastate.edu](http://www.card.iastate.edu).

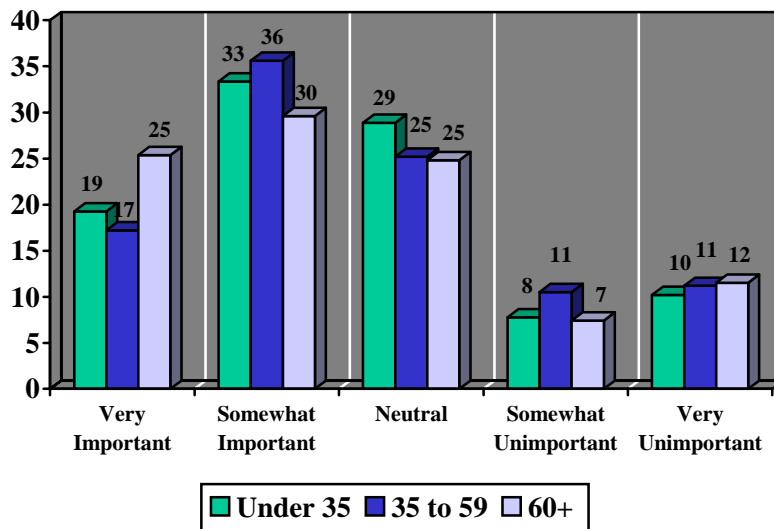
## APPENDIX A

Tables A1 through A5 show the distribution of responses broken down by age category for **all respondents** in the sample (irregardless of their distance from the nearest lake).

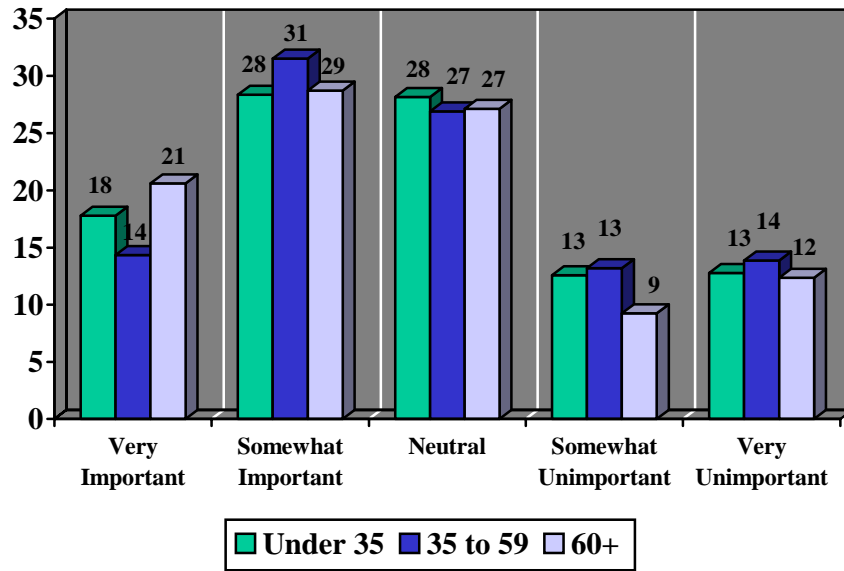
**Figure A1: In its current condition, how important is the presence of the lake nearest your permanent residence to the economic vitality of your community?**



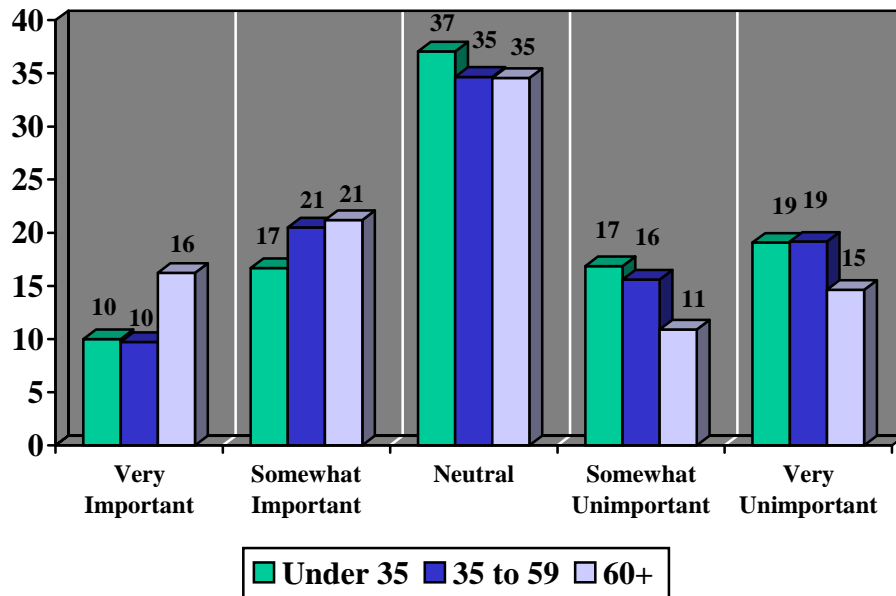
**Figure A2: In its current condition, how important is the presence of the lake nearest your permanent residence to making your community an interesting and vibrant place?**



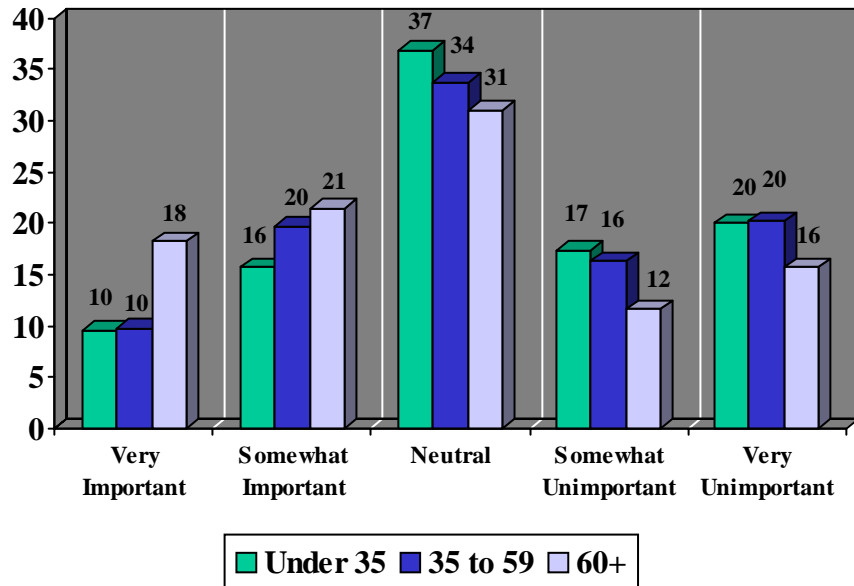
**Figure A3: In its current condition, how important is the presence of the lake nearest your permanent residence to retaining the interest of young people to remain in your community or in attracting prospective residents to your area?**



**Figure A4: In its current condition, how important is the presence of the lake nearest your permanent residence to area employers' ability to retain and or attract a skilled workforce?**

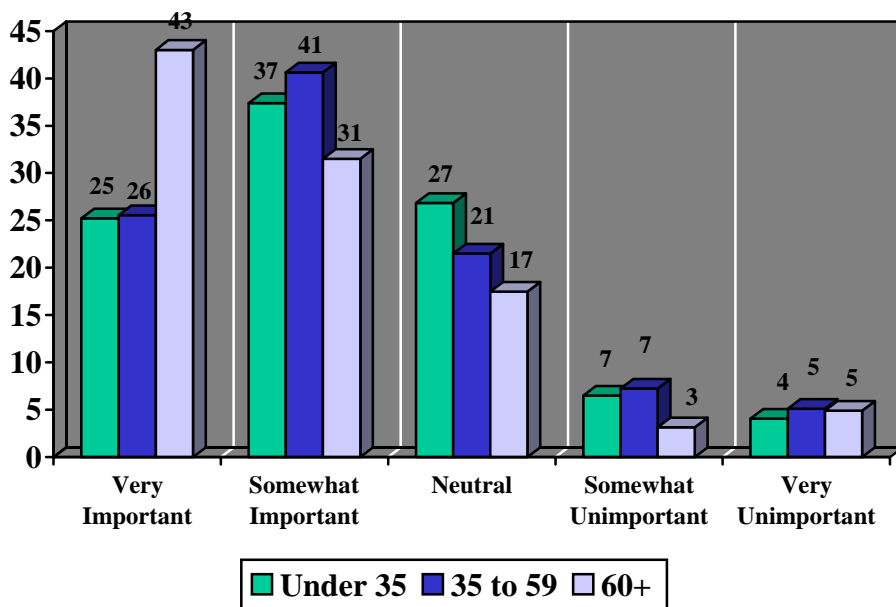


**Figure A5: In its current condition, how important is the presence of the lake nearest your permanent residence to encouraging corporate decision makers to consider your area for establishing a business or expanding an existing industry?**

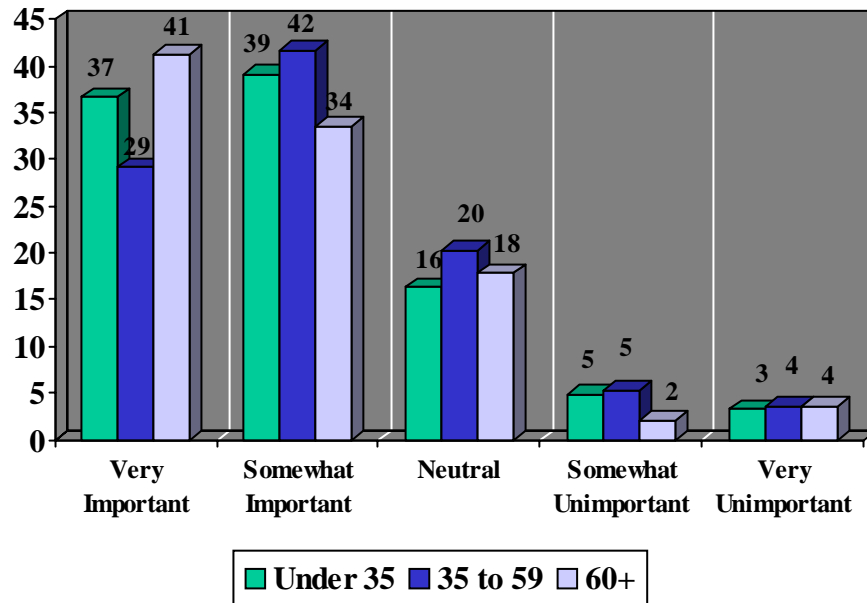


The following five tables, Tables A6 through A10, show the distribution of responses broken down by age category for respondents within a five-mile radius of the nearest lake, for a **significantly improved** lake.

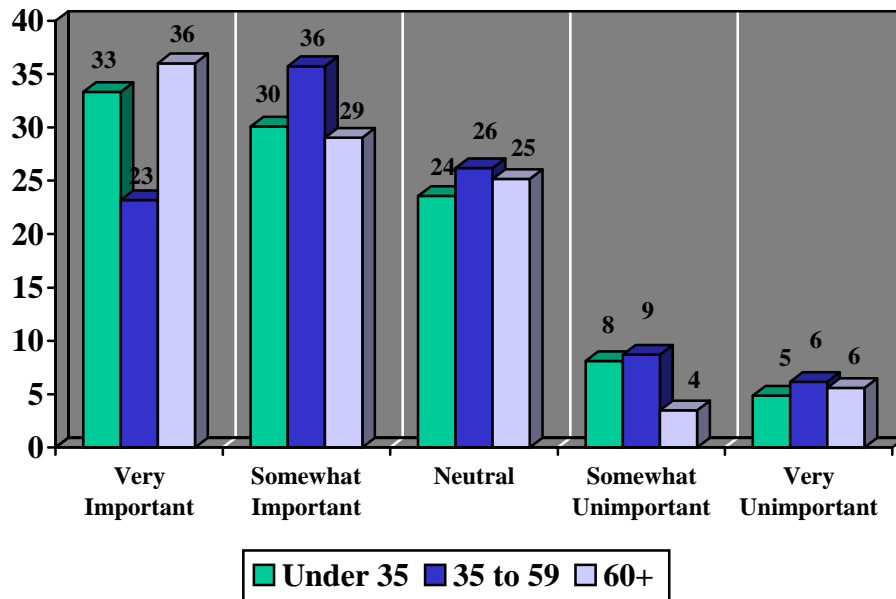
**Figure A6: If significantly improved, how important is the presence of the lake nearest your permanent residence to the economic vitality of your community?**



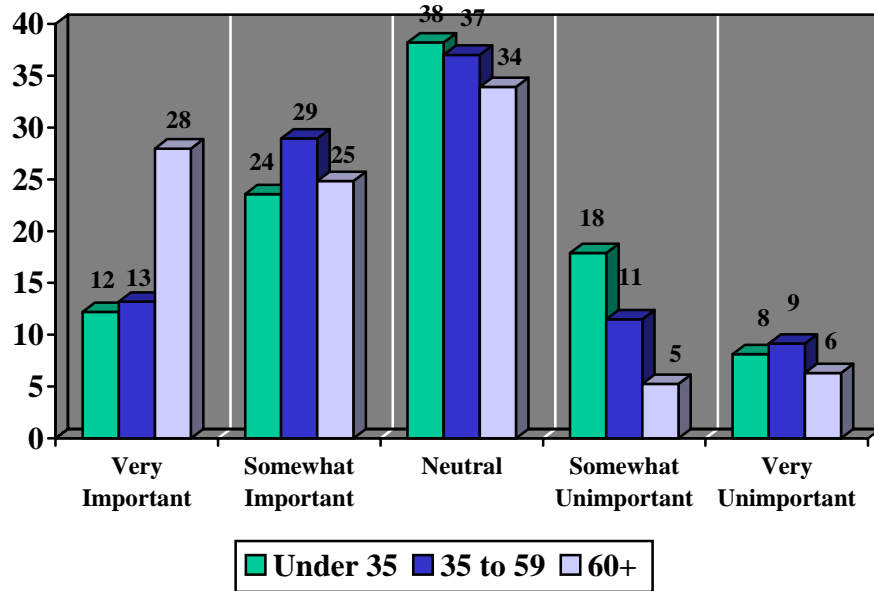
**Figure A7: If significantly improved, how important is the presence of the lake nearest your permanent residence to making your community an interesting and vibrant place?**



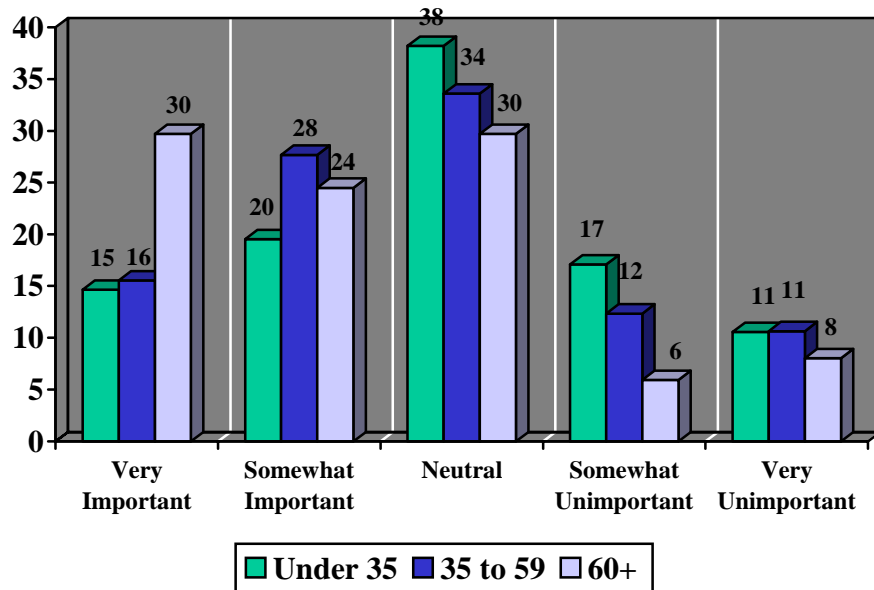
**Figure A8: If significantly improved, how important is the presence of the lake nearest your permanent residence to retaining the interest of young people to remain in your community or in attracting prospective residents to your area?**



**Figure A9: If significantly improved, how important is the presence of the lake nearest your permanent residence to area employers' ability to retain and or attract a skilled workforce?**

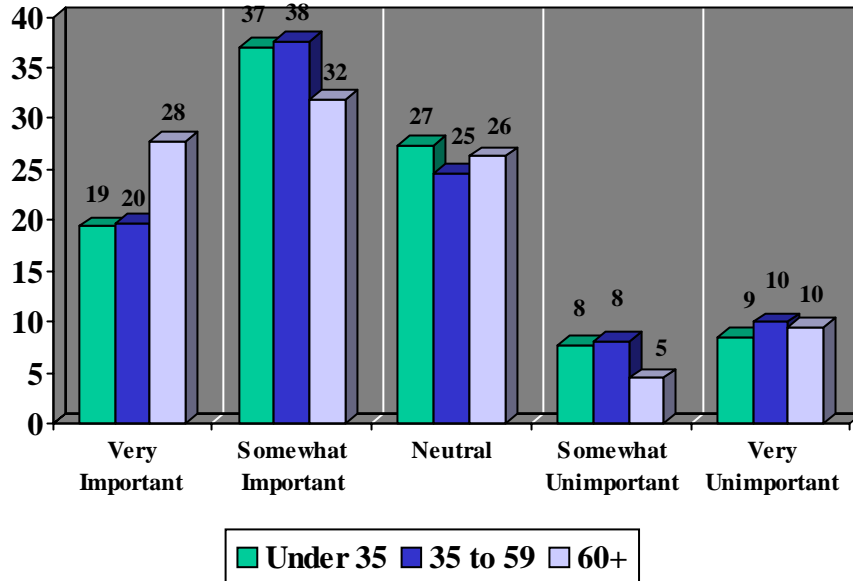


**Figure A10: If significantly improved, how important is the presence of the lake nearest your permanent residence to encouraging corporate decision makers to consider your area for establishing a business or expanding an existing industry?**

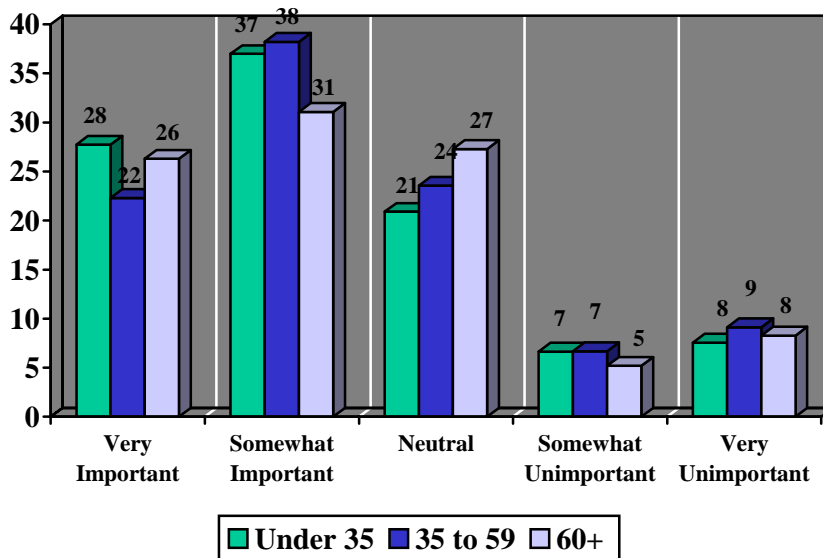


The following five tables, Tables A11 through A15, show the distribution of responses broken down by age category for all respondents in the sample (irregardless of proximity to nearest lake), for a significantly improved lake.

**Figure A11: If significantly improved, how important is the presence of the lake nearest your permanent residence to the economic vitality of your community?**

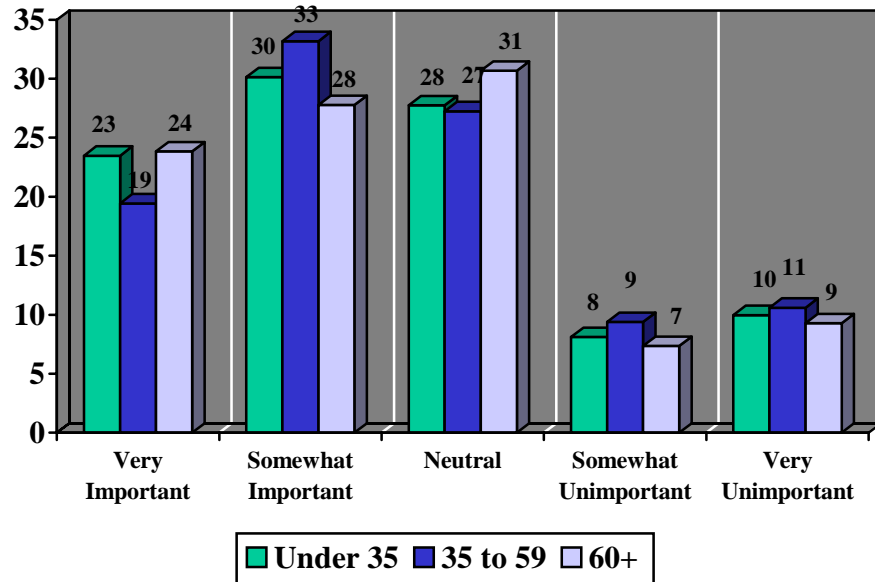


**Figure A12: If significantly improved, how important is the presence of the lake nearest your permanent residence to making your community an interesting and vibrant place?**

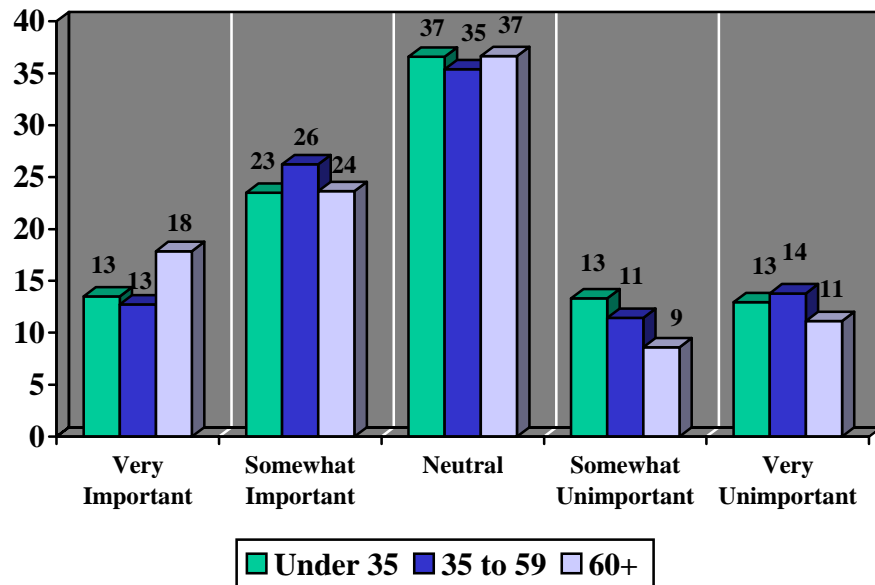




**Figure A13: If significantly improved, how important is the presence of the lake nearest your permanent residence to retaining the interest of young people to remain in your community or in attracting prospective residents to your area?**



**Figure A14: If significantly improved, how important is the presence of the lake nearest your permanent residence to area employers' ability to retain and or attract a skilled workforce?**



**Figure A15: If significantly improved, how important is the presence of the lake nearest your permanent residence to encouraging corporate decision makers to consider your area for establishing a business or expanding an existing industry?**

