Haley Tone
Joanna Westrich
Will Wetzel
Environmental Studies 302
21 May 2006

Management Recommendations for Onota Lake
Pittsfield, MA

Introduction

In February 2006 our group began working with the Pittsfield Director of Parks and Recreation, Jim McGrath, as well as Dick Laureyns, the President of Berkshire Rowing and Sculling, on a project that would study use of Lake Onota in Pittsfield. Our goal was to identify problems within the management and recreational aspects of community lake use, and then recommend ways to alleviate these problems. Our team developed an online survey to get feedback from residents about the frequency and enjoyment of their Onota Lake use, as well as perceived problems. The survey served not only as a basis for data analysis but also as the origin of many of our recommendations to our clients. Our recommendations focus on improving use, increasing safety, and heightening appreciation of Lake Onota, so that it can be more enjoyable for all users, and a more pleasant experience for all.

Site Description: Lake Onota

Lake Onota is a 617 acre lake approximately 2 miles from the center of the city of Pittsfield, Massachusetts. It is the largest body of water in the Upper Housatonic

Watershed, and drains an area of 6345 acres from the Upper Housatonic River basin. The lake is 3.4 miles long and .99 miles wide at its widest point, with 7.4 miles of shoreline and a total volume of 15,980,000 meters cubed.[i] It is fed by three brooks- Churchill Brook, Daniel's Brook, and Parker's brook- as well as by several intermittent streams along the southeast shore.

Lake Onota is composed of two basins; a smaller and shallower North Basin and a 54' deep South basin. Originally, the two basins were separated by an old road, predating the construction of the dam in the 19th century. While this dam has an elevation of 1078.9 feet, the US Geographical Survey denotes the elevation of the lake at 1086 feet.[ii]

The lake is mesotrophic, meaning that it has medium levels of nutrients, but it is consistently enduring a eutrophication process. While the lake has no known point sources of pollution, its eutrophication can be attributed to increases in sediment and nutrients due to development, induced run-off, and erosion. Furthermore, the geology of the watershed area around the lake has very limited porosity resulting in a slow infiltration and recharge rate, adding to the runoff as well. In keeping with of the effects of these factors, clarity in the lake varies between the two basins, and within each as well, based on depth and presence of sedimentation. The exchange of water between the two basins is limited, however, maintaining a higher clarity in the south basin, while the north is less so.[iii]

Within the lake, twenty two macrophytic species have been observed, including both native and invasive species. There have been numerous attempts since over the last ten years to eliminate the invasive species Eurasian milfoil, including the removal of 90% on 200 acres in 1999, the installation of a benthic barrier to control macrophyte growth in

2002, the seeding of 10,000 milfoil eating weevils in 2003, and most recently, the addition of herbicide to the lake during the summer of 2005.[iv] As of September of the same year, the contracted group estimated that the reduction in both the milfoil cover and biomass was greater than 99%.[v] Despite many of these conscious efforts to reduce the invasive species, Onota Lake was still named on the Massachusettes 2004 List of Impaired Waters, because of the exotic species still flourishing in the lake.[vi] Two endangered macrophyte species, however, are actually protected in the lake, Comb watermilfoil and Ogden's Pondweed.

The lake is often used for recreational fishing, and the lake contains 21 species of fish, seventeen natural, and four stocked, including trophy species of trout and salmon. One recent problem in the lake, however, has been fishkills due to dissolved oxygen depletion created by eutrophication, and this problem will have to be addressed. Unfortunately to this date no study of other animal inhabitants, such as the lakes amphibians, has been undertaken.

Around the circumference of the lake there are approximately twelve different wetland systems, five of which are associated with inlet streams. These systems are composed of different types of swamps, as well as freshwater marshes, and experts have evaluated that the three major systems in the area provide high quality wildlife habitats.[vii]

The area around the lake has been divided into ten subwatersheds, numbered with roman numerals, with each subwatershed at least partially abutting the lake's shore.[viii] For the Onota Lake Long-Range Management Plan in Spring 2004, land use data was compiled describing the various types of land use, ranging from acreage of cropland to water based recreation was recorded for each subwatershed.

Development around Onota Lake is generally of low intensity, concentrated around the shoreline, and both commercial and residential in nature (Figure 1). Thomas Island, in the northeast corner, has the highest density of development of the area, otherwise residential development consists lots of more than .5 acres, and is mostly located along the south and west shores. The average yearly residential use for each house is 11 months/year, as most of the seasonal cottages have been converted to year round homes.[ix]

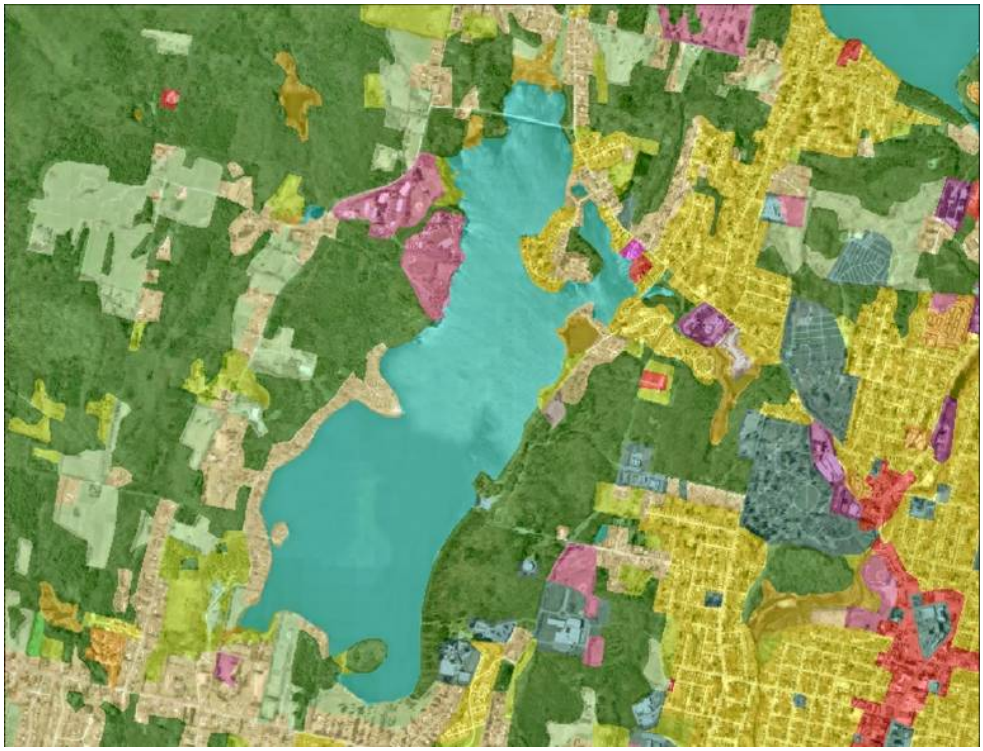

Figure 1: Land Use Around Onota Lake. Blue is the lake. Tan is medium-density residential. Yellow is high-density residential. Dark green is forest. Light green is open field. Red is recreational fields. Red is commercial. Grey is health-care lands (hospitals). The blue in the upper right is Pontoosuc lake.

The Pontoosuc Lake Country Club is one example of commercial development within the watershed of the lake, and its golf course could be one of the major causes of nutrient loading. Burbank Park, located along the east shore, is a public park that serves as the primary access point to the lake. After the City of Pittsfield purchased the water

rights to the lake in 1971, a fishing pier was constructed in Burbank Park in 1976, and the boat ramp in 1984. In addition, the park today also contains parking areas, restrooms, a playground, and the Controy Pavillion.[x] Curiously, according to the official Massachusetts GIS survey, the entirety of Onota's shoreline is zoned as residential (Figure 2). The majority of the lakefront property, shown in tan, is medium density single-family residential. The yellow in the map indicates high-density single family residential, for example on Thomas Island. Though some of this property is protected land, a lot of it, currently forested, may be opened to development in the future.

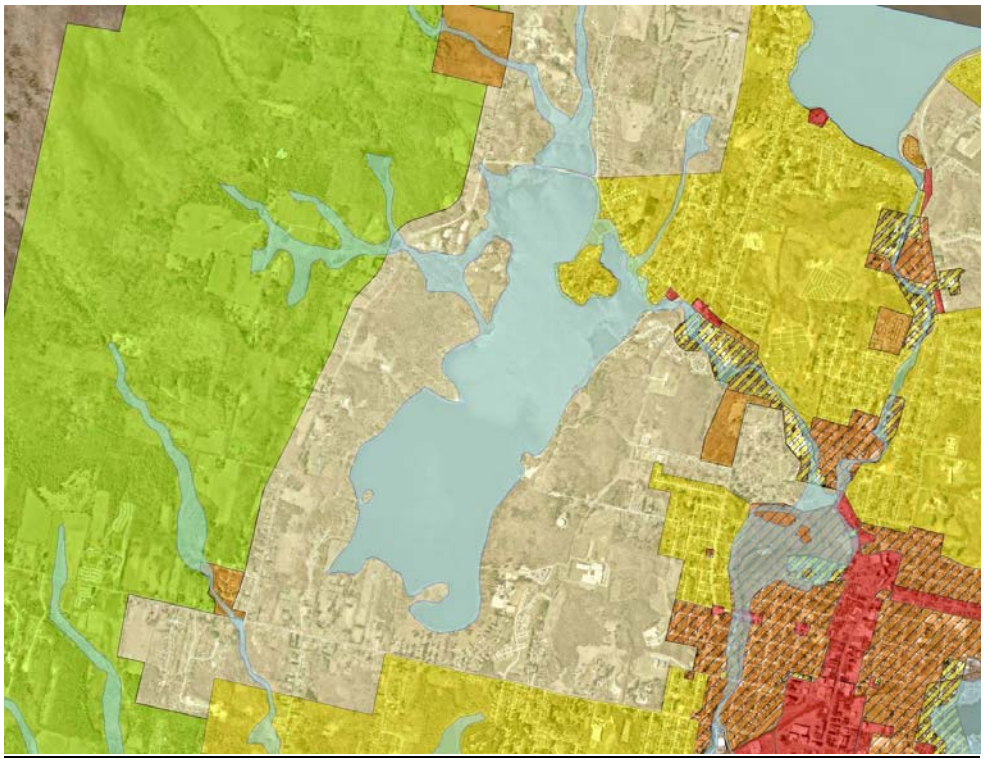

Figure 2: Zoning Around Onota Lake. Blue shows the lake and 100-year flood plain. Tan surrounding the lake is medium-density single-family residential. Yellow is high-density 1-2 family residential. Green is low-density single-family residential. Red is commercial. Yellow stripes is limited industrial.

Site History: Lake Onota and Pittsfield

Throughout the 1700s, Pittsfield slowly expanded, beginning as a lone property of a wealthy man from Boston, and continuing as settlers arrived yearly to live on the Pontoosuc Plantation. On the eve of the revolutionary weary, the village of settlers and surrounding plantation were renamed the Township of Pittsfield, in honor of British Prime Minister William Pitt. By the end of the revolutionary war some years later, Pittsfield had expanded to over 2,000 residents, and its industry had expanded as well. In addition to agriculture, the many rivers and brooks throughout the city that feed the Housatonic provided for the construction of many different types of mills (paper, lumber, textiles.) Furthermore, the first merino sheep came into America, from Spain to Pittsfield, in 1807, and transformed the New England farming scene into pastures. At one point there were over 132,000 sheep grazing in the area.[xi] Furthermore, many of the military uniforms from the Civil War were fabricated at the textile mills in the area; this industry continued to supply Pittsfield with profits for the next century.

In 1891, General Electric moved to Pittsfield and installed the first electric transformer in the country. Because of the addition of the company to the town, the Pittsfield population boomed to over 50,000 people by 1930, and at the high point of General Electric in Pittsfield, GE employees numbered over 13,000.[xii] 1930 was also the year that GE added its first plastic department, even further increasing its industrial power in the area.[xiii]

In the second half of the 20th century, however, just as other manufacturing centers in New England, Pittsfield experienced a steep economic decline due to the parallel decline of the GE company. Today, the practically abandoned GE site as well as 250 acres of the Housatonic River that flows below the site has been deemed a Superfund

site by the Environmental Protection Agency.[xiv] PCB's inadequately deposited of by the company are suspected to have contaminated at least 100 miles of the Housatonic River downstream from the site. And this predicament for GE is not uncommon, in fact the EPA suspects that GE is at least partially responsible for 78 Superfund sites nationwide. In 1998, GE agreed to a $200 million settlement with the Department of Justice, that, in addition to compensation for the damages caused by GE run-off, also includes investments in the City of Pittsfield under their new economic development plan, as well as two miles of river clean up by the company itself.[xv]

In regards to the effects of the GE industry on Onota Lake, no direct connections can be found, other than the total economic depression of the city of Pittsfield that also influenced the state of the lake systems, and their slight disregard over time. The mills built along inlet streams to the lake, as mentioned above, however, had a large impact on the environmental structure of the lake over time, because the mill industry, like GE experienced a dramatic decline as well throughout the 20th century, and one can actually liken the current milfoil problems of the lake today to this decline. In early Pittsfield records there are not any signs of invasive weed problems in Onota Lake to the extent that they are today, and lake managers have determined that while the mill industry was in full throttle, the paper mills, who owned the water rights, used to naturally drawdown the lake yearly, allowing the ground of the lake to freeze, and the milfoil to die for a couple weeks each year. Without the paper mills functioning today, the natural, annual drawdown does not occur, and the weeds have the opportunity to keep reproducing throughout the year, culminating in the past decade's "swamp-like" atmosphere at Onota.[xvi] In efforts to mimic the annual effects of the drawdown by the paper mill, by

enlarging the size of the overflow pipe through the dam, the Pittsfield Department of Parks and Recreation has initiated an effort for a manual drawdown of the lake; it is yet undetermined if their efforts have been successful.[xvii]

The milfoil control efforts over the few years for Onota Lake are numerous. In 1999, a group removed 90% of the species on 200 acres of the lake by hand, and in 2002, a Benthic Barrier was installed over a small section of the lake near the swimming hole. In 2003, 10,000 macrophyte-eating weevils were seeded in specific areas, and most recently, an addition of chemical agents to the lake during the summer of 2005.[xviii] As of September of the same year, the contracted group estimated that the reduction in both milfoil coverage and biomass was greater than 99%.[xix] Despite many of these conscious efforts, however, the amount of invasive species on the lake still is in need of reduction, and the Department of Parks and Recreation now views drawdown as possibly not only the most effective means of milfoil control, but the least expensive as well.

As of Winter 2006, LOPA had achieved had received permission to execute three of its desired 5.5 feet of drawdown that it believes is necessary to win the battle against the milfoil. Its only hurdle stands with the Massachusetts Heritage Program that is in charge of monitoring the Massachusetts Endangered Species Act. Because two endangered species of macrophytes live in the lake, Comb watermilfoil and Ogden's Pondweed, plans for their protection are needed before the complete drawdown level can be attained.[xx] It will not be until the early summer months when it will be apparent if the drawdown efforts have been a success; when the ice is melted and the populations usually begin popping up throughout the lake, in late May and early June.

In addition to the milfoil, a relatively new invasive species has arrived at the lake within the last two years. Water chestnut populations in the lake are becoming a headache as well, as because their roots are bury deep, it is best controlled by hand pulling. At this point, the Department of Parks and Recreation have identified the locations of their populations, and just need to organize a grand effort to go in and pull out the species.

Populations of invasive weeds in the lake tend to concentrate in the northern basin, creating a swamp like environment and consistently catching on the propellers of boats of avid lake users. Besides its shallower water level, the muckiness of the northern basin can also be contributed to Thomas Island, which, before its intense residential development, formerly was used as a piggery.

Other areas around the lake have interesting histories as well. A faintly outlined rock circle on Kay's point actually used to be part of a Native American fishing site, in fact, according to Pittsfield resident and amateur historian Bob Ramsay, Mr. Ramsay even remembers seeing Native Americans around the lake in the early 20th century![xxi] All the tributaries leading into the lake used to be lined with farming, and the former size of some of the farms have determined the large lot size for private residences on along the south side of the lake.

Today, the lake is a haven for recreation, aside from its infestation of invasive macrophyte species. Dick Laureyns described the weekend scene at the lake as the "Wild West"[xxii], based on the combination of swimming, fishing, rowing, canoeing, jet skiing, water skiing, and other forms of boating that take place during the summer on the lake. Based on this observation, as well as those of other lake users, the Department of Parks

and Recreation is currently looking for better ways to manage and regulate use of the lake so that everyone can have a pleasant experience during their visit to this scenic site.

Community Profile: Pittsfield

Pittsfield is a community of approximately 46,000 residents, and socioeconomically, Pittsfield fits in with the rural New England profile. In terms of age alone, there is an obvious trend towards older age; the median age in Pittsfield is 39.6, which is higher than the national average of 35.3. As age is distributed over the population, 5.9% is under five years of age, 76.8% is eighteen or over, and 18.6% of the population is 65 or older, a value much larger than the national percentage of senior citizens of 12.4%. From this data, therefore, we can conclude that the population in Pittsfield is slightly older than that in of the rest of the country.

Pittsfield is also a relatively Caucasian community, 92.6% of the population is white/Caucasian, compared with the national percentage: 75.1. African Americans are the largest minority in Pittsfield at 3.7% of the population.

In terms of schooling, Pittsfield actually has a higher percentage of high school degrees than the national average, at 84.4% and 80.4% of the population respectively, however, in terms of bachelor's degrees or a higher degree, Pittsfield is equally below the national level, at 20.5% with a bachelor's degree, versus 24.4% around the country.

In terms of housing in Pittsfield, there are almost 22,000 housing units, which can be defined as any type of residence that is occupied as a separate living quarters. The average household size in Pittsfield is 2.26 persons, and the median household income is

$35,655, and less than the national median household income of $41,994. The median family income is also less than the national level as well, and to the same degree, at $46,228 and $50,046 respectively. 79.8% of Pittsfield citizens drive to work.

Finally, in terms of occupation, the largest percentage of people works in management or professional occupations, at 32.4%. Trailing behind are 27.7% of the population in sales and office occupations, and 20.6% of the population in service. Only .5% of the population works in farming, fishing, or forestry, which is a very small percentage for what formerly was a highly agricultural area.[xxiii]

Community Research

Onota Lake User Survey

Our primary research tool in this project is our Onota Lake User Survey that we developed in coordination with our clients. Based on interviews and observations about Lake Onota, we developed a series of questions that would illuminate user problems on the lake, as well as poll residents about management changes and ask for their suggestions. If the Pittsfield Department of Park and Recreation had a wish list of changes, its first item would be better lake policing, and secondly, better public awareness, and it was hoped that through the survey, the public would identify these problems as well, and validate the ideas of the Parks Department.[xxiv] After analyzing the data from the survey, the public's opinion as conveyed through their survey responses would help formulate our recommendations to our clients about necessary lake

management changes, as well as show us quantitatively how the community actually uses the lake.

A copy of our Onota Lake User Survey can be found in Appendix A. It is 27 questions long, and the topics vary from frequency of lake use, to frequency of various lake activities, to the quality of the experience of these activities, to perceived problems on the lake, and reaction to the implementation of various fees for lake facilities, as well as open-ended questions asking for opinions about management changes. To administer the survey our clients chose a free online survey website called Survey Monkey at www.surveymonkey.com. After paying ten dollars per month for extra features, Survey Monkey allows the user to design their own survey with their own questions. Create a link to their survey website, and analyze the data throughout the process. The survey itself can be as complicated as necessary, combining multiple-choice questions with matrices and open-ended essays. Each type of question has different options (vertical layout, horizontal layout, one answer per row, multiple answers per row, prompts with words, prompts with images, etc).[xxv] Figure 3 shows how the survey appeared online.

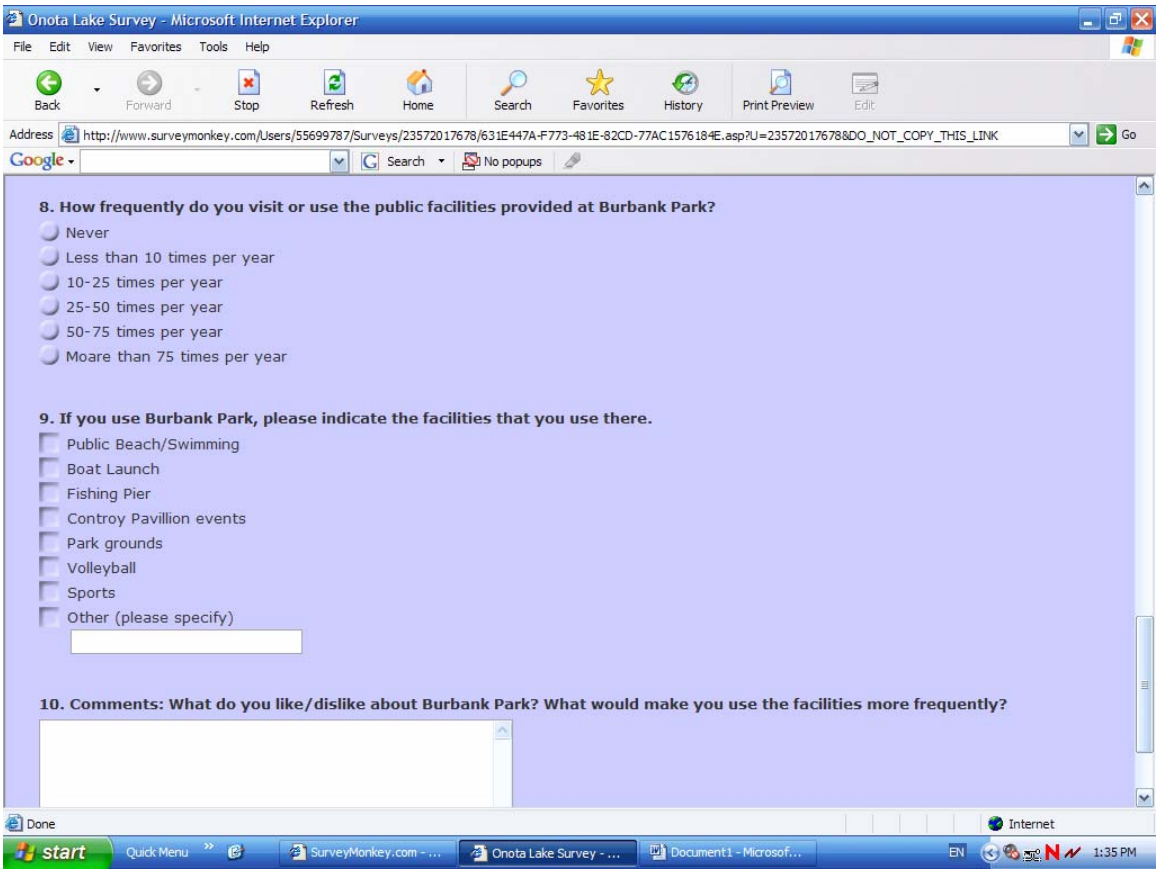

Figure 3: Online Survey[xxvi]

This image shows three of the many types of questions available through Survey Monkey; question 8 allows the respondent to choose on of the options that follow, question 9 allows the respondent to pick any of the options that follow, and question 10 is an open ended question that allows the respondent to type in their thoughts.

Our survey became available online on April 7th. It could be reached online via a link on the Parks Department website as well as the official website of the City of Pittsfield, www.pittsfield.com. Furthermore, a press release was published in the Berkshire Eagle, and also publicized over the public television station, channel 18, through an email alert to the Parks Department list serve, and through postcards distributed to the mailboxes of residents. Hard copies of the survey will be available throughout the summer at public locations in Pittsfield, such as Town Hall, the Senior

Center, and the Library, as well as the Parks Department. Although the survey will remain online throughout the summer, after one month, on May 8th, we exported data for analysis for this project. There were 163 responses at that point.

Throughout the life of the survey online, Survey Monkey is constantly analyzing the responses as they come in, tallying total respondents to questions, percent of respondents, as well as showing summary bar graphs, and separate windows for open-ended questions. Figure 4 is an image of the analyzed data provided online by Survey Monkey of the answers to questions 8 and 9 shown above.

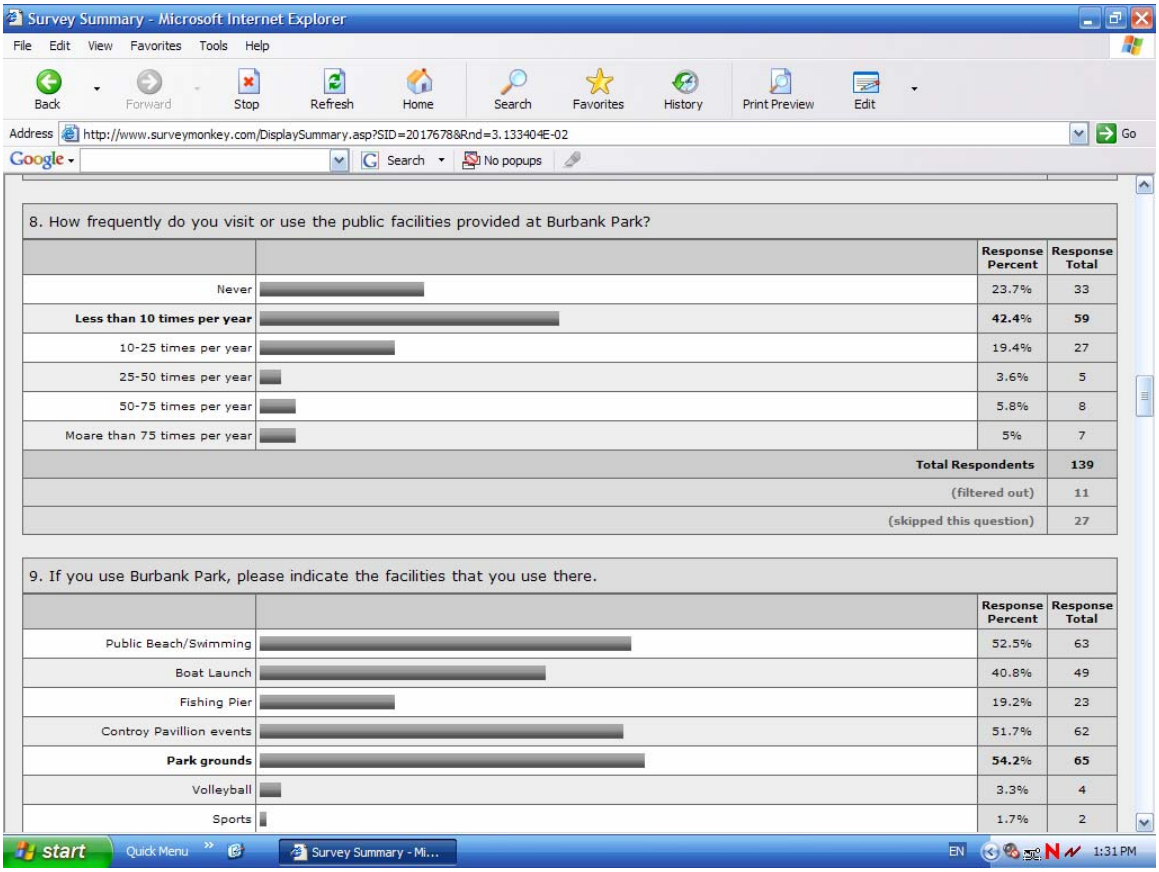

Figure 4: Onota Lake User Survey [xxvii]

The analysis of the data by Survey Monkey is very straightforward. Underneath the question stated at top, the multiple-choice options are listed at the left. The bars in the

center physically show the number of respondents the chose each option, the actual percentage and number of these respondents in the overall total of responses to the question is shown on the right. At the bottom of the right hand columns the total number of respondents to the question is stated. Another feature of Survey Monkey is that it allows the user to filter their results, and in our analysis we filtered out the respondents who were not Pittsfield residents (i.e. responded "No" to the question "Are you a Pittsfield resident?"). Therefore, in question 9, underneath the total number of respondents, 8 answers were filtered from the data, and also 49 people skipped this question.

Survey Results

The data from our survey can be found in Appendix B. In analyzing our data we used both the quantitative and qualitative responses to create our image of the public's perception of the lake as well as their use of it. The following graphs represent data collected from different quantitative questions on the survey about lake values, frequency of lake activities, quality of lake activities, frequency of Burbank Park use, Burbank Park activities, the severity of lake problems, willingness to pay for parking fees, and willingness to pay annual dock fees.

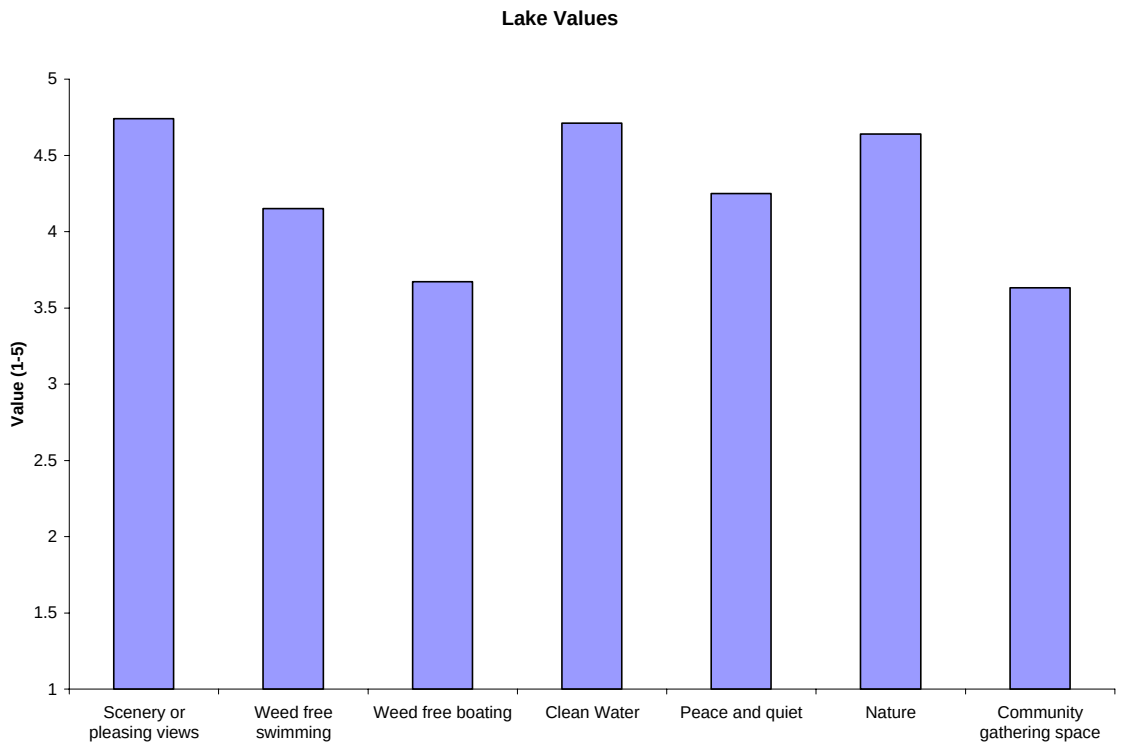

Figure 5: Lake Values

When asked to rate the value of each of the following lake attributes (Figure 5): scenery or pleasing views, weed free swimming, weed free boating, clean water, peace and quiet, nature, and community gathering space, each attribute average at least above a 3 on a 1-5 scale, 5 meaning that the attribute is an essential value. From this graph it is clear that the public places high value on the natural aesthetic of the lake, as well as its physical attributes; clean water and weed free swimming.

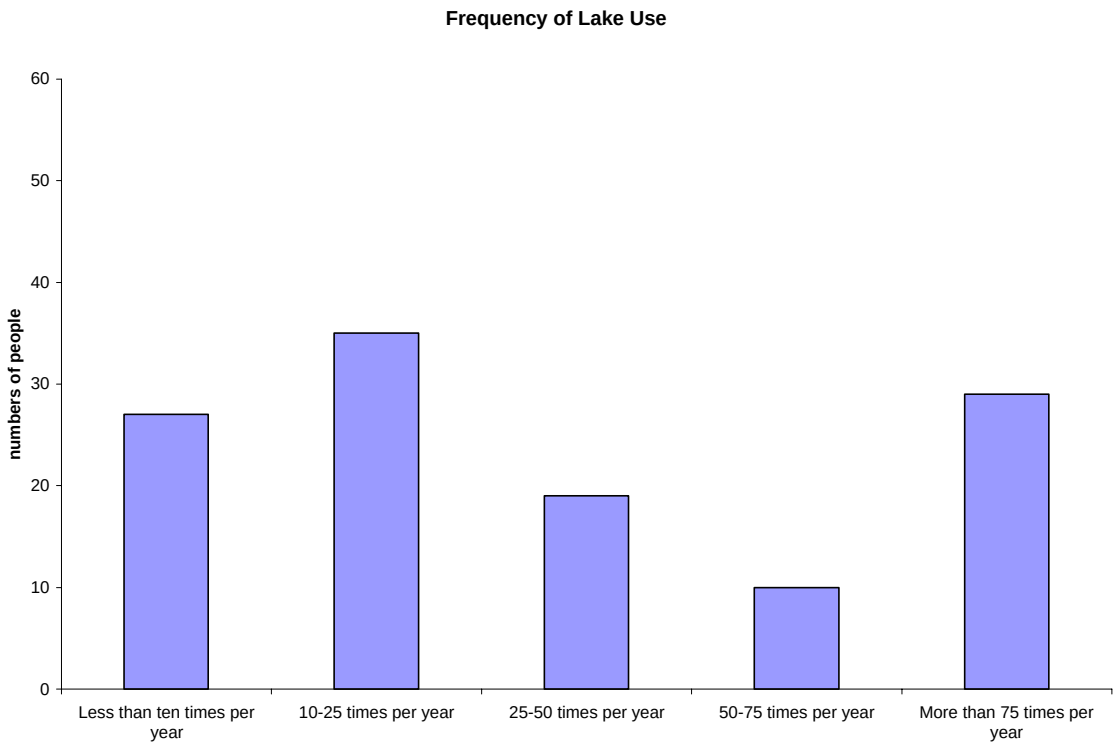

Figure 6: Frequency of Lake Use

Figure 6 shows that there seem to be two types groups of people who frequent the lake, those that use it between 0-25 times per year, which could be deduced to at most five times per month in the warm months, and those who use the lake more than 75 times per year, that is to say rowers who go out every morning in their sculls, or daily swimmers in the summer.

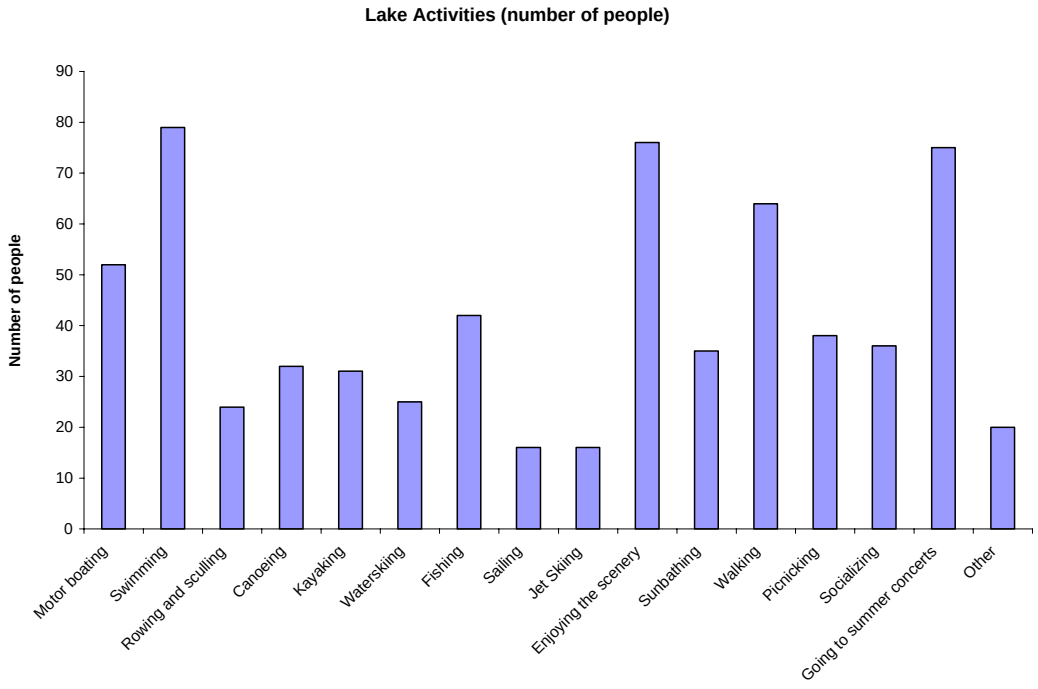

Figure 7: Lake Activities (number of people)

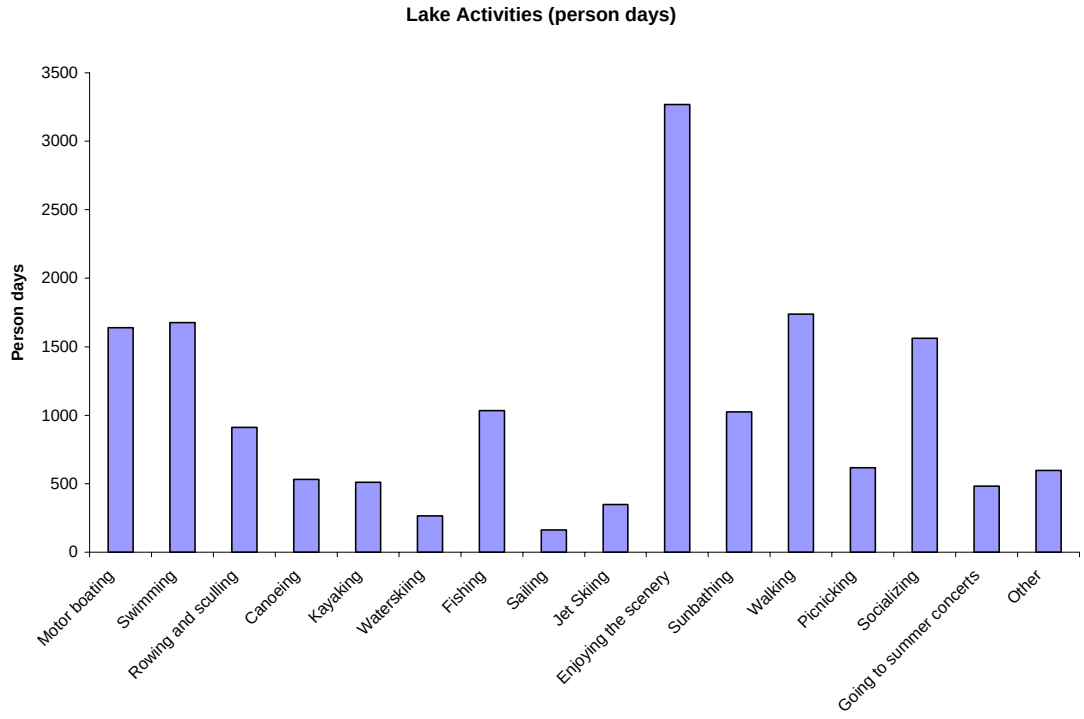

Figure 8: Lake Activities (person days)

Figure 9: Quality of Activity Experience

The previous three graphs are grouped together because all of the data actually came from one question on the survey, question 5. Figures 7 and 8 show the number of people who do each activity throughout the year, and how often they do so. For some of the activities the two columns representing the same do not change very much, but in other cases, such as "going to summer concerts," while the number of people is high, the person days is low because the concerts do not happen very often. Similarly, many more people swim than motorboat, however, but the actual person days throughout the year of swimming and motor boating is about equal, saying that either people swim less frequently, or motorboat users come more often. Figure 9 shows that across the board, the quality of experience for each lake activity is about the same, with all of the columns hovering at or slightly above 3.5, on a scale of 1-5, 1 meaning bad, 5 meaning great. The

right-hand columns on the graph, which represent activities of a little bit lower impact that mostly take place in the park, have a slightly higher overall quality, while the lake activities on the left are a little lower. This may be because of the competition on the water between motorized and non-motorized uses, although it is impossible to know, and while motor boating has a very high quality of 4, canoeing almost reaches 4 as well.

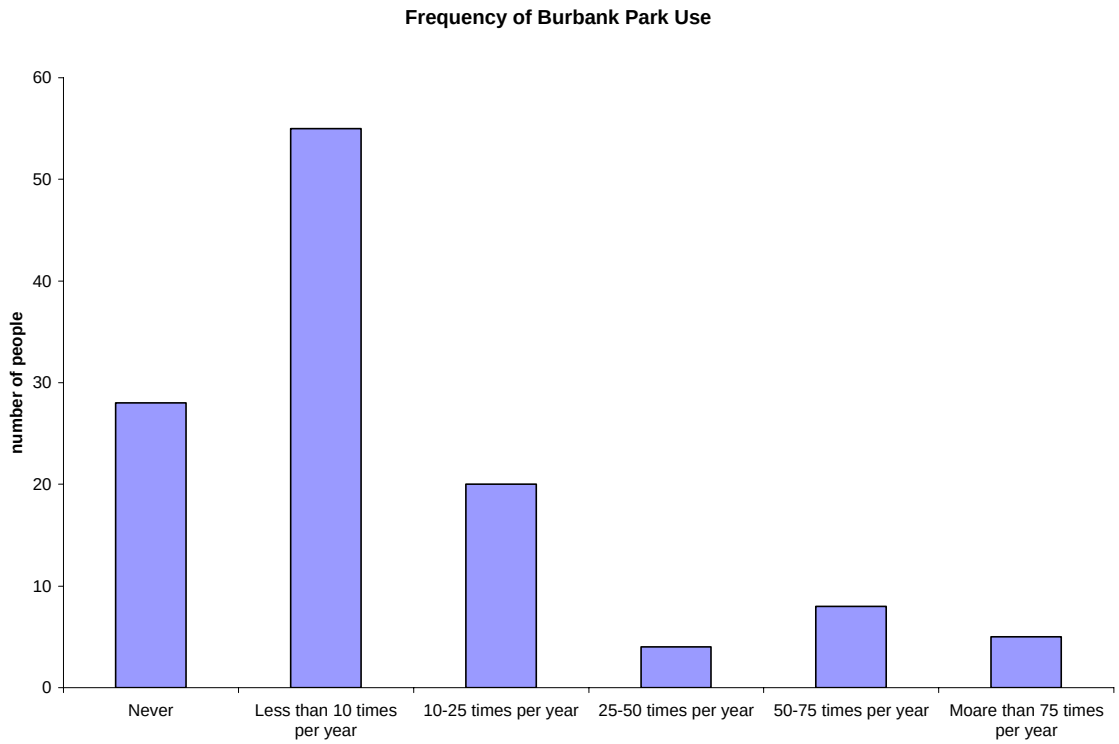

Figure 10: Frequency of Burbank Park Use

In comparing Figures 6 and 9, notice Burbank Park is not used as many times per year by the same person as Onota Lake. The bulk of park users come to the lake less than 10 times per year, or never at all. This group is probably your summer picnicker, occasional swimmer, or infrequent loading dock user.

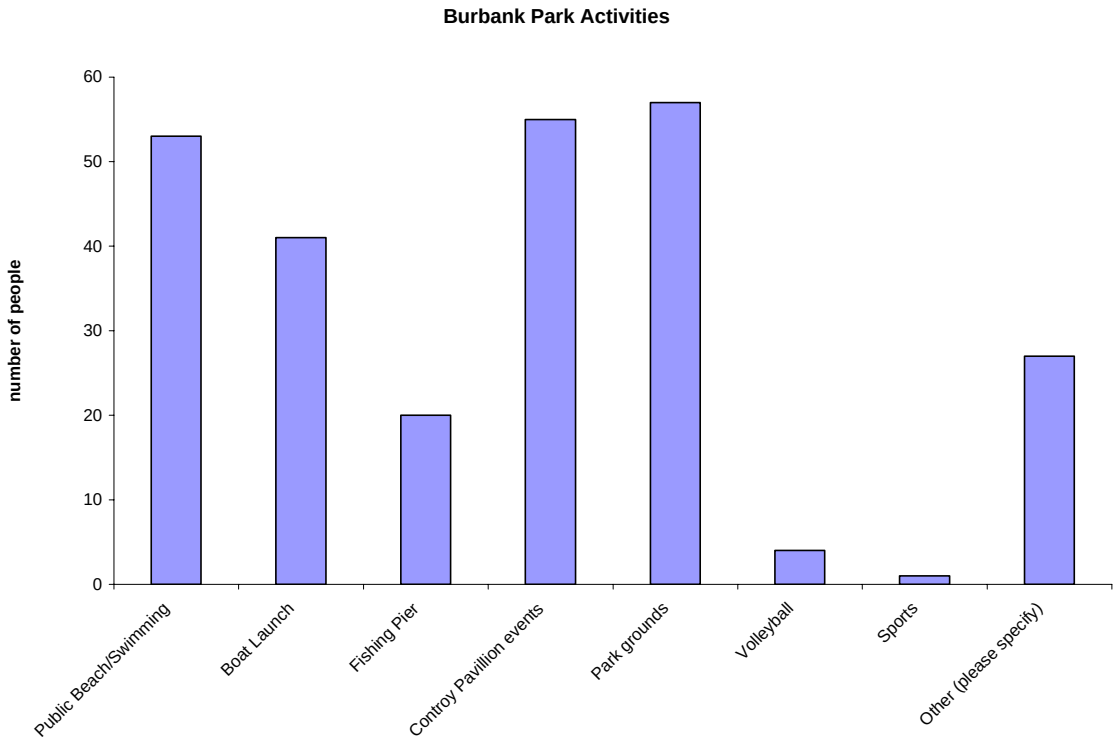

Figure 11: Burbank Park Activities

The most frequented activities at Burbank Park are using the park grounds, presumably as a park itself. Users also enjoy the Controy Pavilion events, and swimming at the public beach. Use of the boat launch is the fourth most frequented activity.

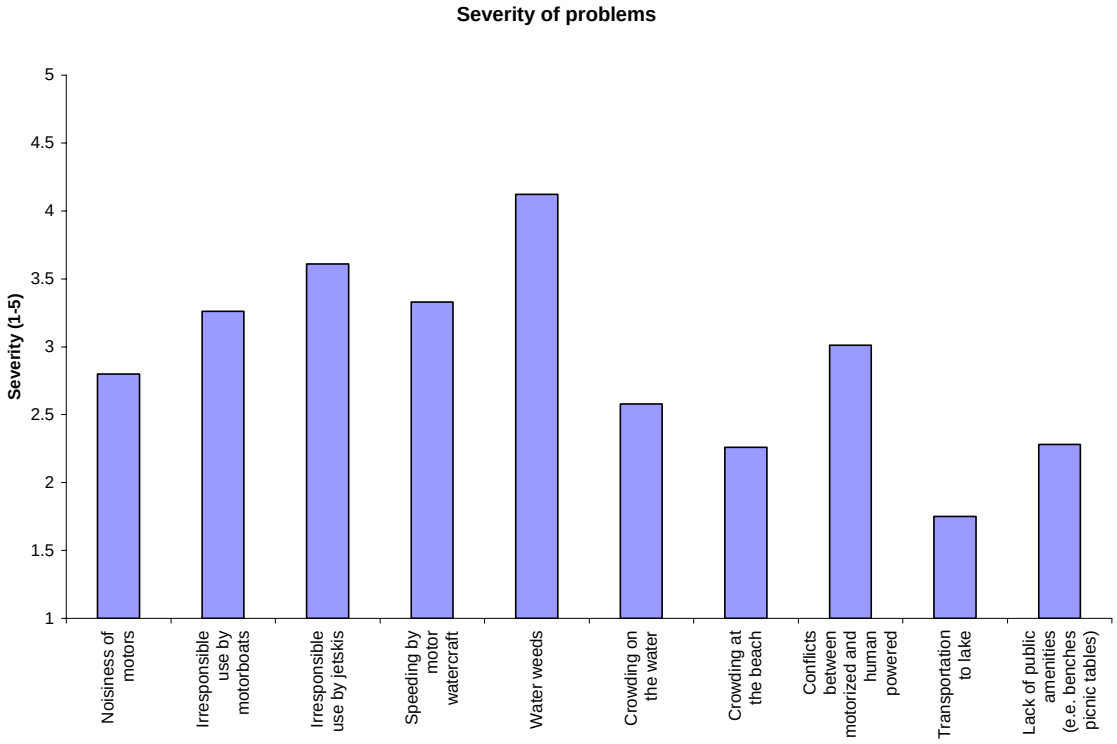

Figure 12: Severity of Problems

Figure 12 shows the publics rating of the severity of various problems already perceived on the lake. Obviously, water weeds is the most severe problem rated by users, probably not only because of its yearly presence, but also from the publicity its had over the past decade in efforts to clean up the problem. The next five highest problems have to do with motorized watercraft, or conflicts with them. Irresponsible use by jet skis is followed by speeding by motor watercraft, irresponsible use by motorboats, conflicts between motorized and human powered crafts, and noisiness of motors, in order of decreasing severity, respectively. It is clear from this graph that the public views motor craft use on the lake as one of the most severe problems in many regards. While only 16 people, as shown in Figure 9, claimed to be jet ski users on the survey, and only 6 people

claimed to own one themselves,[xxviii] their effect on creating the perception of a jet ski problem on the lake has been tremendous.

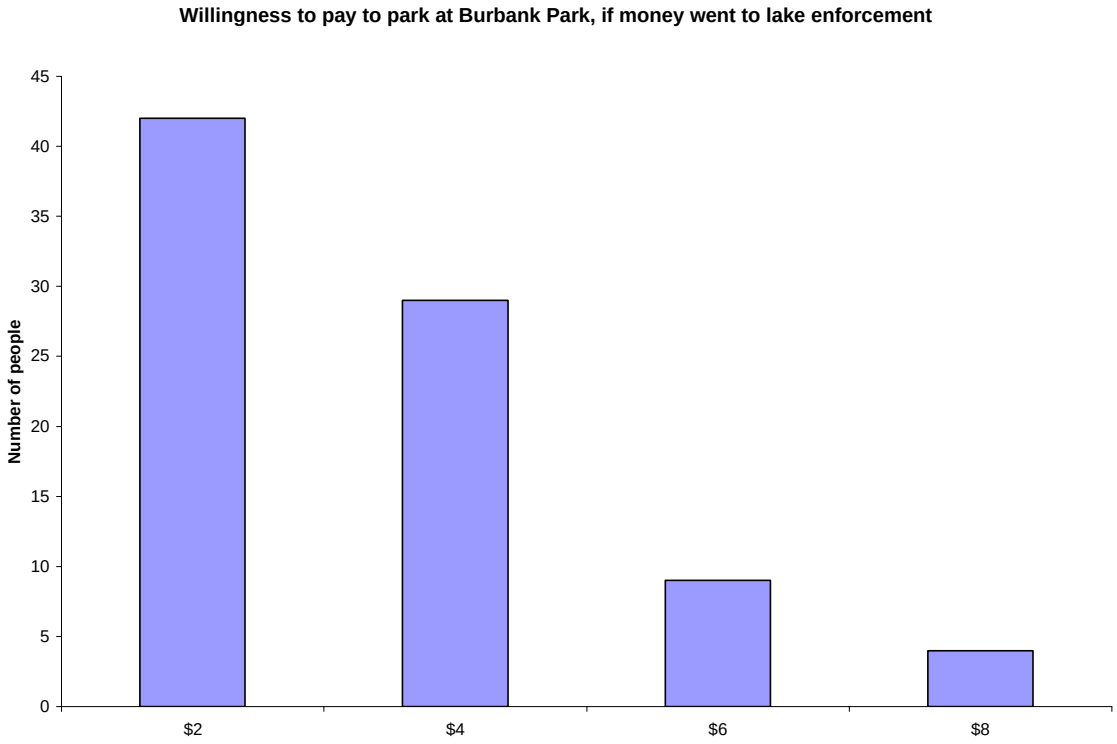

Figure 13: Willingness to pay to park at Burbank Park, if money went to lake enforcement

Because of the descending nature of Figure 13, it is safe to say that the public is not very willing to pay for parking at Burbank Park, and many people wrote in to say that they would prefer not to pay for parking, because of park use by low-income families, or frequency of said use, or because the beach is part of a public park.

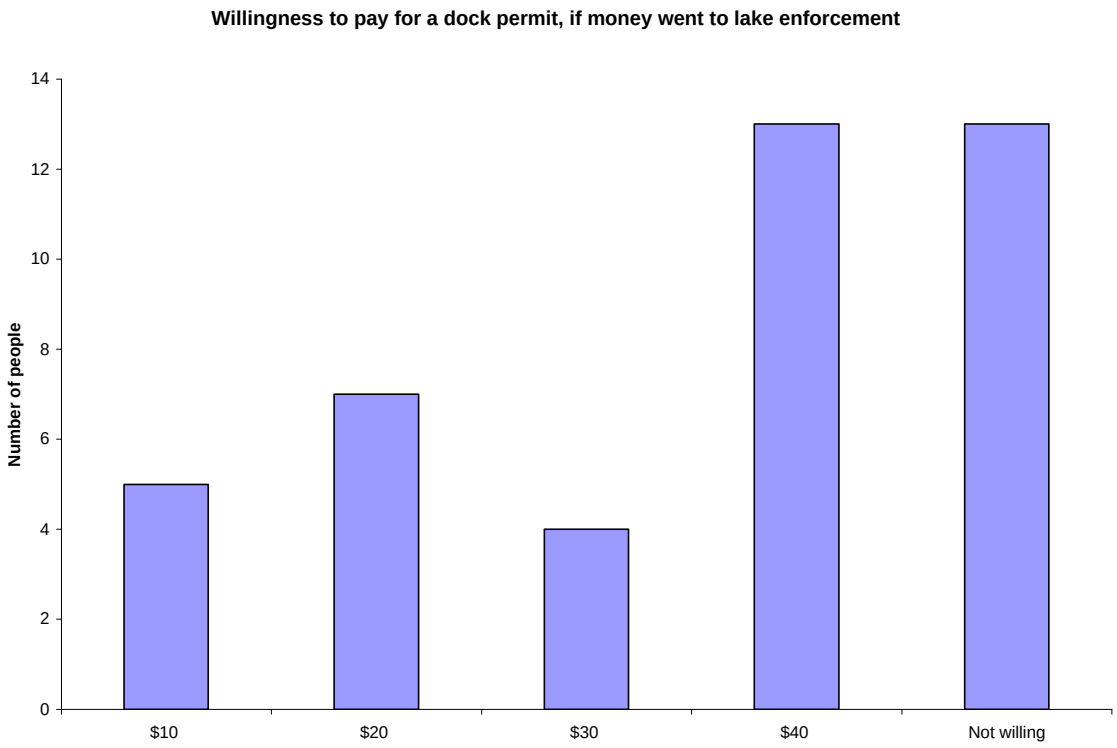

Figure 14: Willingness to pay for a dock permit, if money went to lake enforcement

In knowing that only lakefront dock owners were asked to answer the question that provided this data, it is interesting to note how willing they were to pay a dock fee. While an equal number of people were not willing to pay as were willing to pay $40, others wrote in to say that $40 is "a steal,"[xxix] and that they would be willing to pay even more as an annual fee.

In addition to the graphs, which show user distribution over a range of activities, fees, or levels of enjoyment, the survey also provided us with qualitative information from the open-ended questions. A list of these responses can be found in the survey data in Appendix B. Because there is also more quantitative data than what appears in the graphs, in Appendix C, you can find a brief study of the survey data from midway through the survey period.

Data Analysis

As seen above, some of the graphs make very clear the perspectives of the public on certain lake issues. To compile perspectives into one place, our group devised a chart that lists the overall problems at the lake (conflicting uses, Burbank Park maintenance, user fees, enforcement of lake regulations, and water weeds), and then various solutions to each problem (Table 1). We chose our overall problems and their consequent solutions through analysis of the survey, as well as discussions with our client. In using the chart as a way to guide changes to lake management, rules and regulations, it was important to combine the public's opinion, based on analysis of the survey, with not only the perspective of our client, but our own as well, derived from research and expert interviews. The following chart, therefore, combines all three perspectives, the public, the client, and the lake team. Each group rates their support for each lake issue solution on a 1-3 scale, 1 meaning that they do not support the solution, 2 meaning that they somewhat support the solution, and 3 meaning that they strongly support the solution. Solutions are also grouped by type, denoted by a bold line. . In the totals column on the right is the sum of the 1-3 ratings from each of the three groups, and the solution with the highest total within each type is highlighted in bold, along with any other important sums as well. The n/a ratings from our client apply to solutions that we did not discuss with our client prior to the creation of the chart.

Table 1: Weighing Options

Alternatives for . . .	Parks Department	Public	Lake Research	Totals
Water Weeds				
Continuation of weed control	3	3	3	**9**
Use of herbicides to control invasive species	1	3	1	5
Conflicting uses on the lake				
No wake hours between 9 pm and 9 am	2	2	3	7
No wake zones in section of lake	1	2	1	4
No wake zones enforced along shorelines and around dock areas	3	2	3	**8**
Lower speed limit to 40 mph	2	3	3	**8**
Ban on motorized craft on Sundays	2	1	1	4
Ban on jetskis	2	2	2	6
User Fees				
Parking fees for daily users	**2**	**1**	**1**	4
Parking fees for daily users with season pass option	**3**	**1**	**1**	5
No parking fees	**1**	**3**	**3**	**7**
Trailer fees for motorized watercraft	**3**	**1**	**3**	**7**
Trailer fees for non-motorized watercraft	**n/a**	**1**	**1**	2
Fees for lakefront dock owners	**3**	**1**	**3**	**7**
Enforcing Lake Regulations				
Hiring of new lake enforcement official	**2**	**3**	**1**	6
No new lake enforcement official	**1**	**1**	**1**	3
More regulation at Burbank Park	**3**	**2**	**3**	**8**
Increase city police presence at Burbank Park	**2**	**3**	**3**	**8**
Informational kiosk stating park and lake regulations	**3**	**2**	**3**	**8**

Under "Conflicting Uses on the Lake," the leading option to remedy this problem is to enforce the no-wake zones mandated by the state of Massachusetts. While we, the Lake Team, as well as our client deem this a very important solution, some members of

the community, especially motorized boat users, might not be as willing to change their speeds on the lake in certain no-wake areas, which is why the public's opinion is rated a two. Another solution within the same planning problem is the creation of no-wake hours on the lake, which received a score of seven. We think that no-wake hours would create a much more enjoyable atmosphere for lakefront property owners as the loud motors would be restricting in the early morning, and it would also allow rowers time without wakes as well.

For bettering maintenance at Burbank Park, while our client believes that there are enough trashcans at Burbank Park, a common comment from the community in the open-ended survey responses was the amount of litter in Burbank Park, and the overflowing trashcans, which create a polluted atmosphere in this public space. Therefore, our group agrees here with the public that there should be more trashcans.

In the user fees section, it is clear that the public is not as amenable to the implementation of user fees for various public lake services as the client and we are. No parking fees at all received a higher total than the implementation of parking fees for daily users, but the same score as parking fees for trailers with motorized watercraft. Similarly, fees for lakefront dock owners, (if implemented to pay for more enforcement on the lake) also had a high score, and actually seemed acceptable to many lakefront dock owners, as see in Figure 10.

All groups agree that a new lake enforcement official should be hired, and it is also important to increase police presence on the lake as well. Clients and team alike believe that adding signage in Burbank Park describing lake rules and regulations would alleviate some of the problems, and a few respondents voiced similar opinions in their

open ended responses. All groups also agree that the weed control of the invasive milfoil species should continue, and surprisingly, the public response in the survey to using herbicides to treat the weeds was positive.[xxx]

Conclusions: Survey and Data Analysis

From the survey and ensuing analysis of the data, there are three overarching themes that we can draw from our results to guide our recommendations to our clients. Firstly, the lake needs stronger management to enforce rules and regulations, and secondly, the police department needs to take more interest in the lake and increase their presence there. These two themes would provide for stricter enforcement of speed limits and no-wake zones, as well as safety issues in Burbank Park, all concerns voiced in the survey. Thirdly, public awareness of lake rules and regulations needs to increase as well. We believe that through educating the public about their responsibility as users of a public lake, conflicting issues will decrease as people become more aware.

Recommendations

Overview

Based the conclusions from our survey results and analysis, as well as further research, our group chose three major recommendations for changes to lake management, as well as a list a more specific recommendations for changes to rules and regulations. Our recommendations are as follows: the creation of a Lake Onota Commission that will have power over all matters that directly or indirectly affect the waters of lake Onota, the

increase of police involvement at the lake, and the increase of public awareness about lake rules and regulations. The Lake Onota Commission is based on a similar commission for Lake Quinsigamond, in Shrewsbury, MA. The Lake Quinsigamond Commission has had jurisdiction over the lake and its matters since 1936, and according to its chief, it works quite well.[xxxi] In following with the commission, the increase of police involvement will help to enforce regulations in Burbank Park and on Onota Lake, as well as collect fines for irresponsible users. Heightening public awareness of lake rules and regulations will alleviate problems through educating the public about their own responsibility to the park, the lake, and to others. These three major recommendations encompass many of the smaller issues found in our survey, as well as solutions listed in our chart, and by grouping them into three themes, we can make more concise and effective suggestions about overall changes to lake management.

Lake Quinsigamond and a Lake Onota Commission

Figure 15: Lake Quinsigamon (www.lqwa.org)

Lake Quinsigamond located between Worcester and Shrewsbury, MA provides an excellent example of lake management. Quinsigamond (772 acres) is comparable in size to Onota (617 acres) and is used for a wide array of recreations from engine to human powered (Figure 15). The lake is the site of many regattas as rowing is especially popular. Suburban development from Worcester has reached the southern half of the lake, while the northern half is less developed. Quinsigamond was one of the first lakes in the New England to be used extensively for recreation. In 1905 the White City Amusement Park opened on the shore of Quinsigamond and operated until it closed in 1960. (lqwa.org/photohistory.html, en.wikipedia.org/wiki/Lake_Quinsigamond).

Because Quinsigamond is closer to large urban areas than Onota, it is ahead of Onota in development and the issues that often follow development. The Lake Quinsigamond Watershed Association explain, “Ultimately, Lake Quinsigamond’s

'success' proved to be its greatest risk, as Worcester's urban areas encroached on the lake and endangered its water quality and picturesque setting." (lqwa.org/photohistory.html). As early as 1916 the commonwealth of Massachusetts recognized the conflicts on Quinsigamond. The state established the Lake Quinsigamond Commission, which had an advisory role over lake management. The lack of legal authority left the commission ineffective until 1936 when Amendment Chapter 181 was passed, giving the Lake Quinsigamond Commission power over "any matter that directly or indirectly affects the waters of Lake Quinsigamond." (lqwa.org/lqc.html). The commission holds monthly public meetings where they manage short-term issues like violations and long-term issues like lake development.

There are currently nine positions on the commission. These are the police chiefs of Worcester and Shrewsbury, one member from the Worcester Conservation Commission, one member from the Shrewsbury Conservation Commission, one member from the Grafton Conservation Commission, one person appointed by the county commissioners, and three residential landowning abutters to Lake Quinsigamond, appointed by the county commissioners (lqwa.org/lqc.html).

On November 16, 2005 the Lake Quinsigamond Commission approved 32 lake-use and boating regulations. These regulations address issues of safety, environmental protection, aesthetics, lake-use fee collection, navigation, and common courtesy. Many of the regulations reiterate state or federal laws, which at first may seem excessive. However, it allows the commission and the police to maintain local power. They can handle and manage transgressions at the local level. According to Wayne Sampson, chairman of the Quinsigamond Commission and Shrewsbury Chief of Police, if the

police were simply enforcing states laws then it would take many months or longer for cases to work through the system. Furthermore, many of the penalties are small fines.

Wayne Sampson explains that the Quinsigamond Commission can require transgressors to appear before the commission at their monthly meetings. The commission can then immediately institute punishments, which have included banning particularly unsafe boaters from using the lake for as long as a year. This direct action has immediate impacts on lake safety, much more so than simple enforcement of state regulations. Fines for violating the commission's regulations range from $50 to $500 and are issued cooperatively by the City of Worcester and Town of Shrewsbury police departments.

Other regulations are specific to the situation at Quinsigamond and take state regulations a step further. The speed limit for the entire lake is 40mph, 5mph below the state mandate for inland waters. In addition, the commission feels that boats longer than 30ft do not belong on a lake the size of Quinsigamond and therefore they prohibit vessels of this size. Because people with private docks and wharfs use the lake more than most groups and because they usually have the greatest interest in lake management, the commission charges a $25 dock/wharf permit fee each summer. All docks/wharfs must display the commission's permit by May thirtieth each year.

Quinsigamond is heavily used by recreation groups. As a result, the commission has several regulations which manage group-use of the lake. All organizations, competitions, regattas, and other special events must purchase Special Use Permits for $100 per day. The commission reserves the right to impose restrictions or special

conditions on holders of Special Use Permits. If these conditions are not met, then the Special Use Permit is null and void.

Residents on the shores of Quinsigamond complained of late night parties and early morning rowing practices where coaches use bullhorns to shout directions. Consequently, the commission decided that the use of sound amplification devices is a disturbance of the peace between 2000h and 0700h.

The management schemes in practice on Lake Quinsigamond can serve as a valuable model for the management of Lake Onota. Although, Onota does not benefit from having two adjacent police departments, the way the Lake Quinsigamond Commission guides police involvement in lake management is a valuable model.

From our survey and interviews, it is obvious that there are many short-term changes that would improve the quality and safety of Lake Onota, but the most successful management scheme will be a commission like at Quinsigamond that has the ability to tackle long-term issues and has real local power. We recommend, therefore, the formation of the Lake Onota Commission. This group should have seven members, including the Pittsfield police chief, the director of parks and recreation, 1 member of the conservation commission, 1 member of the planning board, a Lake Onota Preservation Association leader, and 2 residential landowning abutters to the lake. The esteemed Pittsfield mayor would appoint the last 5 members to the commission. Onota is a valuable Pittsfield resource and requires careful management from the city government and community members.

Community involvement in lake management is one of the great strengths of a lake commission. It will bring together important community leaders from different

sectors and give them the opportunity to think critically about what the community wants Onota to be and how the commission can manage the lake to get it there. Because lake management involves legal enforcement, police involvement on the commission will be of particular importance. If the police department feels a commitment to the lake then they will put forth the regular effort needed to make it a safe part of the Pittsfield community. The director of parks and recreation will bring a community service oriented view to the commission's lake management. After all Lake Onota is a part of Pittsfield's park system and the lake's primary use is recreation. Onota is also an environment resource and the conservation commission member will help the lake commission ensure that the environmental integrity of the lake is maintained for public health and ecosystem health. The planning board member will bring Pittsfield's long-term goals to the lake's management. It will also force the planning board to consider Onota in its long-term plans for the city of Pittsfield. A planning board member will also have an understanding of the development issues which are certain to arise in the residential and commercial areas around the lake. LOPA is a vital part of the Onota community and deserves representation on the lake commission. In addition, LOPA's leaders understand the lake and its problems more intimately than many other community leaders. A LOPA leader would bring great insight to the lake commission. Finally, lakefront property owners will feel the management of Onota most acutely and in addition they have the most influence on the success of lake management. As a result, lakefront property owners deserve a place on the commission. Like the LOPA leader they will bring an understanding of the immediate problems on the lake to the commission. Also, if the lake community

members realize that their neighbors are working hard to make Onota a better place, then they will be more likely to follow the regulations and help with lake management.

Not only will the commission bring community leaders together, but also the public at the monthly meetings. Residents were effusive about their lake in the lake-use survey. This is an indication that community cares about Onota but has no outlet to communicate their frustrations and no forum to discuss solutions. Give the opportunity to attend commission meetings and participate in the management and protection of one of Pittsfield's greatest assets, community members will respond very positively. The more people feel that the lake is theirs to manage, the better care they will take of it.

The only drawbacks to a lake commission are the initial organization and perhaps political effort and then the continued commitment of the committee members. The use of Quinsigamond as a precedent will greatly facilitate the initial political organization. The continued commitment of the committee members also is a surmountable obstacle. The public leaders will commit to lake management if the public demands that better management be instituted. The more pride people take in the lake, the more leaders will want to take part in protecting the lake.

Police Involvement

Police involvement was necessary on Lake Quinsigamond and would be necessary on Lake Onota. Shrewsbury police chief and chairman of the Lake Quinsigamond Commission, Wayne Sampson, said "For the summer months this is considered a regular patrol area… we're responding to the public need." He emphasizes that the police department needs to see the waters of the lake as just another

neighborhood in their city that they need to protect. If the people spend their time on the lake, then the police have a responsibility to have a presence on the lake. A common Onota-use survey response was "Patrolling the lake should be treated the same as patrolling the streets." The lake cannot be viewed as a lawless place.

To patrol the waters of Quinsigamond, the each police department (Worcester and Shrewsbury) maintains a police patrol boat. The Worcester police department explains, "The Lake Boat Unit patrols the waters of Lake Quinsigamond and also Indian Lake during the months of June through September. The main function of this operation is to accomplish safe and orderly boat traffic movement and the promotion of water safety." (www.ci.worcester.ma.us/wpd/operations.htm). Without a patrol boat the police departments would be impotent; the same would be true on Lake Onota. A police boat would not have to be an expensive speed boat. Its main function would be establishing a police presence on the lake. Judging from advertisements of used boats for sale, the cost of such a patrol boat would range up from $2500: a small investment for such a large community.

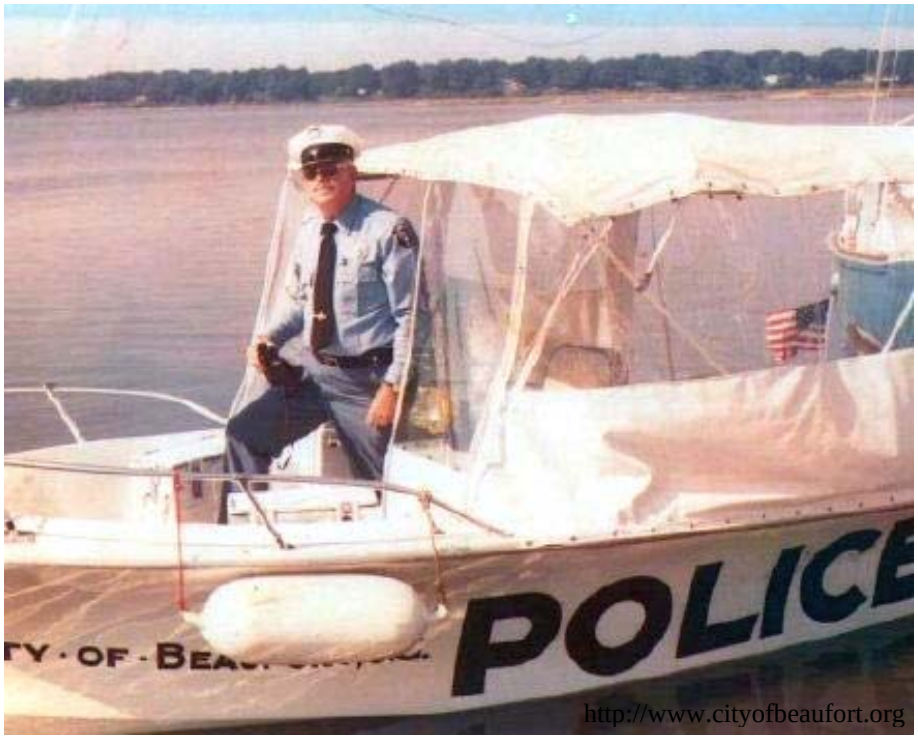

Figure 16: A small city police boat in North Carolina

We propose that LOPA spearhead a fundraising campaign to help the City of Pittsfield pay for a patrol boat. In 1999 a local marina in Charlton, MA donated a small vessel to the police department and since the police has patrolled Buffinville lake and other local lakes. The Charlton Police Department pays for the summer patrol operation with regular community policing grants because they consider the lakes integral parts of the community. They explain, "The boat patrol mission is to ensure safe and responsible boating. The patrol also conducts safety checks on boaters throughout their tour. In addition, the patrol has assisted with various events being held on the water." (www.charltonpd.org/watercraftpatrol.htm). The patrol is responsible for rescuing two young men whose boat capsized in 2000. The town runs the patrol from Memorial Day to Labor Day.

Training terrestrial police officers to work in an aquatic environment is an easily surmounted obstacle. The police department in Charlton, MA sent its marine officers to the MA Department of Environmental Protection Police where they learned both the state inland water regulations and how to enforce them from a vessel. The Charlton Police department explains "All officers received extensive marine law classes and hands on personal watercraft training through the Massachusetts Environmental Police, mainly Officer William Ramsey." (www.charltonpd.org/watercraftpatrol.htm).

At the beginning of this project, James McGrath suggested obtaining an increased presence of the MA DEP Police on Lake Onota. We recommend that this is not an attractive option for three main reasons. First, the environmental police do not have adequate resources to give Lake Onota the attention it requires. There are only ~110 MA DEP police officers and they have a big land area to patrol (www.itronix.com/upload/casestudy/Massachusetts_Environmental_Police.pdf). Wayne Sampson, chairman of the Lake Quinsigamond Commission, agrees that the environmental police cannot make the patrol time commitment that a heavily used lake requires. Second, the MA DEP police do their work somewhat anonymously. They are not a part of the Onota community and would not feel the same community ties that a local police officer would feel. The residents being policed would resent being policed by outsiders and this would not encourage the Onota community to improve the lake. Last, revenue from MA DEP fines would go to the state and not directly back to Pittsfield and the potential Lake Onota Commission. Local police involvement has far more potential to improve Lake Onota than increased visitation by the MA DEP police.

Public Awareness

The survey and our research revealed that in addition to a lack of enforcement on the lake, the public has a dearth of knowledge about the rules and regulations on Lake Onota. The lake, Burbank Park, and other entry points (e.g., Onota Boat Livery) are inadequately signed and marked to inform the public of safety issues and regulations. A common response on the survey was "There need to be more signs posted about what the rules are for regular park use, not just at the boat ramp and there need to be large, clear and concise signs posted at the beginning of the park and each subsequent driveway that inform of park hours and warn of the consequences." Non-motorized lake-users are concerned that there are no signs warning "[motor] boats launching from the public pier about the possibility of small, human powered craft."

Motorboat users are along unaware of the headway speed zones which surround boat ramps and swimming areas by 150-300 feet according to MA inland waterway law. Users are under the impression that the speed zone ends at the rope for the swimming area. Consequently, swimmers feel unsafe as motorboats speed by at close proximity. A common survey complaint was "irresponsible and illegal use of jet skis and motor boats - too close to swimming areas." Other users complain that "Some jet skiers and boaters tend to fly around the lake with little regard to the fact there might be a person swimming in a particular area or that they have entered a designated swimming area."

Other lake-users explain, "There is problem with uneducated boaters/jet skiers. This can be solved by taking a boating course." A boating safety education course would be a successful way to improve public knowledge. The course could be encouraged and

potentially taught at local schools. Lake-users complained of young boaters behaving irresponsibly. A boating course could be targeted at youths but perhaps made into a parent and son or daughter event. Boating is often a family bonding event and water safety should be equally emphasized as a family activity.

In addition, navigational hazards are inadequately marked on the lake. One user complained that "stumps and serious shallow sections [are] unmarked." It would greatly increase lake safety to mark reefs and other danger zones with noticeable buoys or floats. Floats, anchor chain, and moorings are a small cost compared with the cost of a lake rescue if a lake-user has an accident. Prices for top quality buoys that explicitly state "danger" are $300 and under.

It is unfair to require people to behave according to rules if they are unaware of their responsibilities. We recommend that one of the Lake Onota Commission's first tasks be a lake safety and lake-use responsibilities public education campaign. Until the formation of the commission, LOPA and the department of parks and recreation should spearhead this campaign. Specifically we recommend increased signage at entrances to the park, at boat ramps, and in parking lots, a Lake Onota informational kiosk, and a revised and more widely distributed "Onota Lake Welcomes You!" brochure. It is essential that all signs and kiosks are informative and noticeable yet attractive. They should blend in and look like they belong in their surroundings. Please see our specific recommendations for details on signage, a kiosk, and buoys.

Further Recommendations:

Swimming Ropes

At the moment the public swimming area offered at Burbank Park is marked off only by a floating rope. Many users have complained that boats and jet skis traveling at higher speeds have ventured unsafely close to the swimming area. Swimmers experience disruptive wake from the boats and the unpleasantness of loud motors. Massachusetts state law mandates that boats travel at headway speed (6 mph) if they are within 300 feet of a swimming area or within 150 feet of a swimmer (Figure 15).

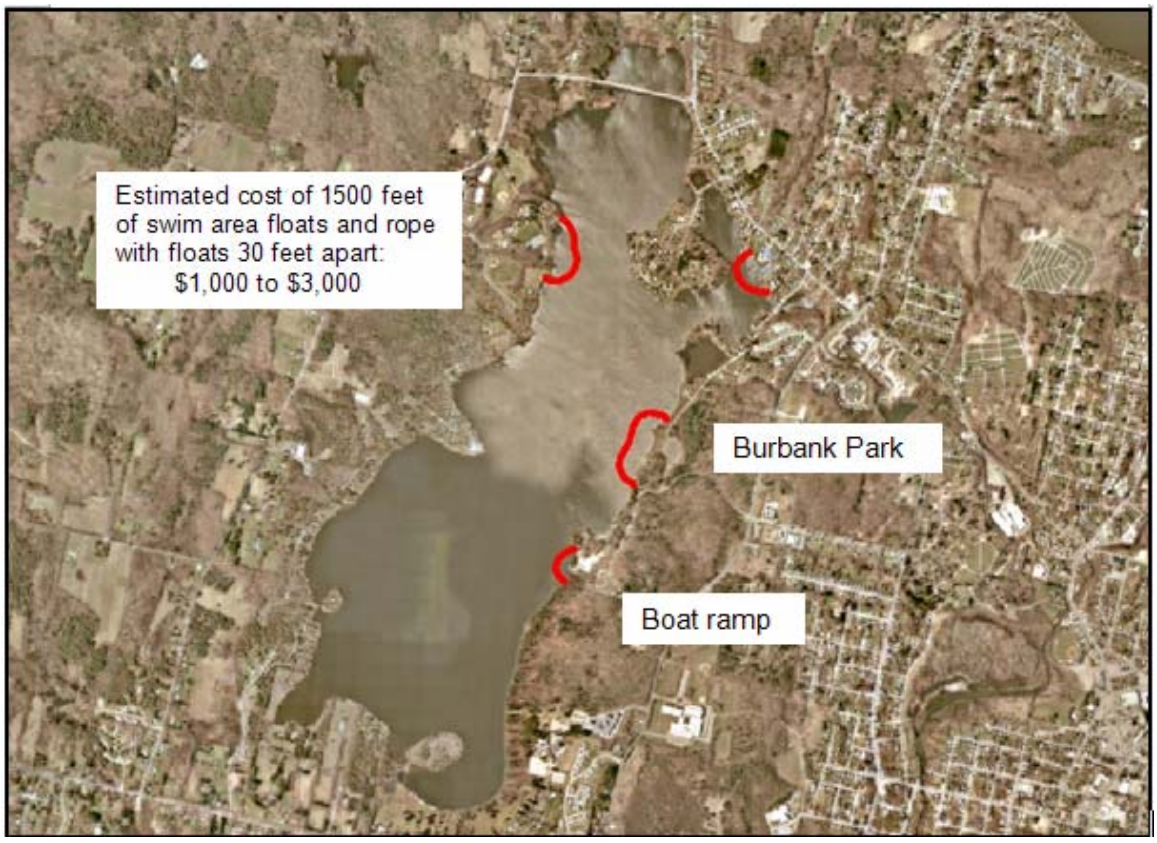

Figure 16: Headway Zones on Onota Lake

In order to create a safer and more peaceful swimming environment for visitors to Brubank Park, our team recommends a better demarcation of this headway zone. The swimming area needs greater visibility as well as a reminder of the 300 ft buffer zone. One cost effective option might be floats connected by a rope, which would further

discourage motorized traffic in the area. Another option to consider would be the placement of several buoys 300 ft out with signs warning boaters of their proximity to swimmers.

Speed Limits

According to State Law, the speed limit on any body of water is 45 mph. However, Onota has several features which make a lower speed limit seem more desireable. First, Onota is a popular recreational destination located near a city, and is heavily trafficked during the summer and on weekends. On a narrow body of water with many peninsulas, and with such a high demand for its use, lowering the speed limit may be seen as a safety precaution, although fortunately accidents have been rare in the past.

Second, Onota is enjoyed by crowds of users who value the lake for a variety of different activities, both motorized and non-motorized. But for many non-motorized users such as rowers, scullers, fishermen, swimmers, sailors, and kayakers, the wake caused by vehicles traveling a higher speeds can interfere with the quality of their recreation. In our survey, “Speeding by motor watercraft,” “Irresponsible use by motorboats,” and Irresponsible use by jet skis” as issues on Lake Onota were ranked as more problematic concerns for users (Scoring 3.24, 3.26, and 3.66 out of 5, respectively). “Conflicts between motorized and human powered recreation” scored a 3.0 out of 5, a higher than average score.

Finally, when changes to lake management were proposed in our survey, one-half of all respondents said that “Restrictions on motor boating (e.g speed limits)” is a change that they would “strongly support” (5 out of 5). With this strong signal of public approval

for such a team, our team would like to recommend that the speed limit of Onota Lake be changed to 35 or 40 mph.

As an alternative and supplemental measure to consider, the North Basin of the lake is already somewhat geographically separated from the main body of the lake. To provide exclusive space for non-motorized activities, the city could also consider making the northern tip of the lake a low speed or no-wake zone (Figure 16). This lake management suggestion ("Division of lake into speed limit zones e.g. 5mph limit in the north basin)" was strongly supported by 31% of respondents, the majority for that topic. However, physically making this delineation with buoys could be expensive, and it may be met with opposition from homeowners in the area.

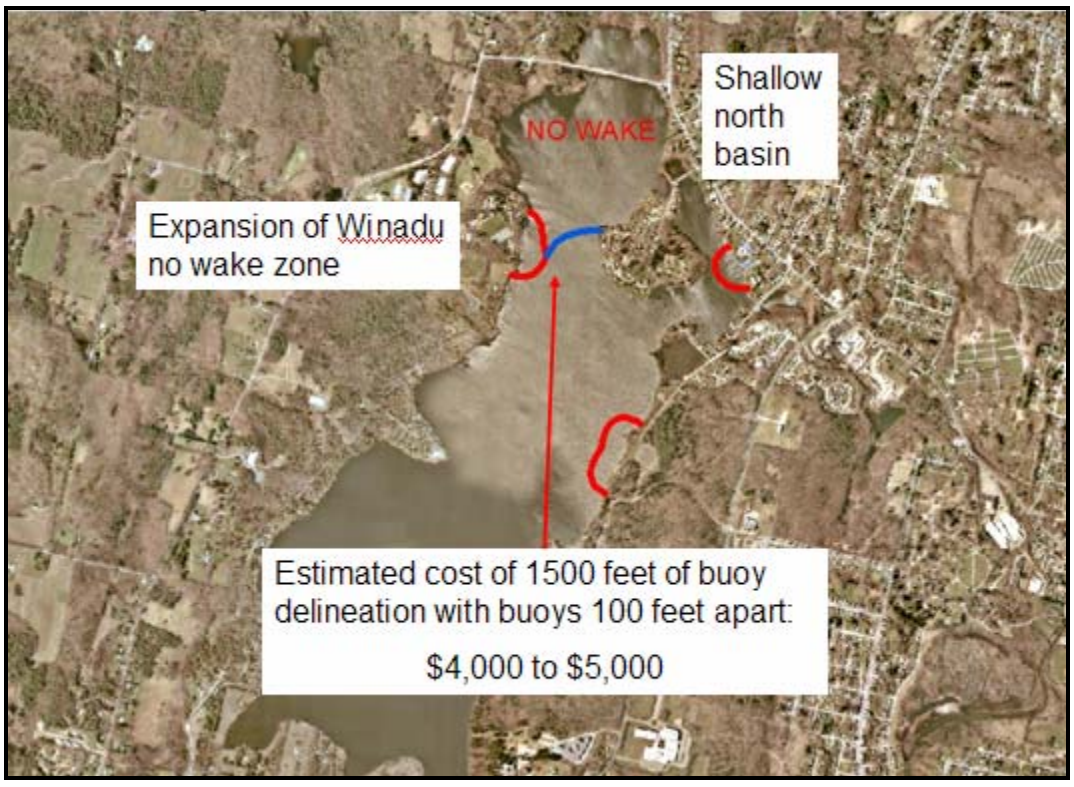

Figure 17: A possible no-wake zone

"Headway Hours"

Implementation of headway hours, when boats are required to travel at a no-wake speed of 6 mph or less, would help further alleviate the conflict between motorized and non-motorized users of Lake Onota. Our team would suggest a time period such as between 9pm and 9am, when boaters would not be unreasonably inconvenienced, and when the lake would naturally be more peaceful and quiet. Swimmers, fishermen, rowers, scullers, and kayakers would all benefit from having the early morning hours of the lake reserved for their use, and we suspect that residents would also enjoy a more tranquil and undisturbed morning.

"Noisiness of motors" on the lake did not appear to be one of the major concerns, although its score of 2.81 out of 5 suggests that the public feels it is somewhat of a problem. The geography of Lake Onota may be a culprit for the noise issues that many respondents remarked upon in some of the survey's open-ended questions. Onota, situated in a natural topographic bowl, tends to amplify the sound motors in use on the water.

Again, this recommendation is strongly supported by feedback from the public. A majority of those polled, 37%, indicated that they would "strongly support" the "creation of no wake hours on the lake (e.g. no wake between 9pm and 9am)."

Informational Kiosks

Placement of an informational kiosk near the entrance or boat launch of Burbank Park would be instrumental in educating users about lake rules and policies both on the water and in the park, and hopefully eliminate infractions due to ignorance (Figure 17).

These kiosks should be aesthetically pleasing and not distract from the natural surroundings. They should be tasteful in their design, and ideally constructed of wood, and the kiosks should be placed near enough to pedestrian traffic as to attract readers, yet not infringing on views or sightlines. These kiosks will also serve to remind visitors that they are enjoying the use of a public space, and that they need to be respectful and considerate in their use of it. A relevant reminder would be to wash one's boat before launching it, to prevent the spread of invasive weeds. Another detail to consider would be a plastic bag dispenser accompanying a reminder to clean up after pets. Unfortunately many survey respondents complained of animal feces marring their experience of the park ("I think the area is beautiful…but it seems that wherever I sit, I can smell dog poop"), and this simple addition could go a long way in mitigating the problem.

Figure 18: A Lakeside Kiosk

Updating the current "Onota Lake Welcomes You!" pamphlet produced by LOPA would provide another venue to emphasize lake rules and user etiquette, and include suggestions about boat safety, responsibly boating, and neighborly park use.

Jet Ski Ban

Our survey demonstrates that over 50% of Lake Onota users consider "Irresponsible lake use by jet skis" to be a severe or moderately severe problem. "The jet skis just take over the lake and have no regard for other users of the water," is a typical response to a query about problems on the lake. They are disproportionately identified as perpetrators of speeding and other unsafe activities.

An examination of the responses to lake usage questions shows that 8.2% of the users surveyed owned a jet ski or personal watercraft, and that 13.3% had used the lake for jet skiing. Notably, however, the majority of this latter group (69%) reported using Onota for jet skiing fewer than ten times a year.

The issue of irresponsible jet ski use stood out in our survey as a clearly identified problem for a lot of Onota's visitors, and it appears as though jet skiing was not one of the more popular lake activities. When such a small selection of lake users is responsible for disrupting the enjoyment of a much greater population, it is only fair to consider limiting that activity on the lake. Admittedly jet skiing is a fun lake activity, and this may not be the most popular of our recommendations, but it is a conclusion that is supported by the findings of our survey.

Dock Permits

Dock owners should be charged an annual fee to pay for dock access to the lake. While 31% of dock owners were not willing to pay for an annual dock permit to fund enforcement of boating regulations, almost 60% were willing, and 31% of respondents were willing to pay up to $40. (Note: this survey question was limited to lakefront homeowners). Several respondents even expressed surprise that our survey had limited itself to a fee so low!

This is a reasonable measure to suggest, considering that lakefront dock owners would benefit disproportionally more from improvements to lake management and security. In fact, many people exhibited marked enthusiasm for the presence of an enforcement official that a dock fee could help employ.

Parking Fees for Boat Trailers

Parking fees for boat trailers is a way to fund further lake management, without restricting access to all Burbank Park users. The public would not have to pay to use the Burbank Park facilities for picnicking, swimming, or non-motorized usages. Our survey showed that people were very against general parking fees for a public park. However, vehicles with trailers, which take up more parking space, stay longer, and benefit more directly from lake amenities like the boat launch, represent a user group that it would not be unreasonable to charge. Furthermore, our survey shows 45% of users are willing to pay $4 or more to use the boat launch facilites. Despite the possible positive impact that this additional fund could have on lake management, it may still be an unpopular change for many users. 36% of users stated that they were “not willing to pay” to use the boat launch facilities at Burbank Park.

Unfortunately we are legally prevented from charging for use of the boat launch itself, so a system would need to be devised to gather payments and levy fines. The city may want to consider hiring an onsite employee if possible, or users could be directed to the parks department to pay their fees. Definitely explore the option of discounted prices and seasonal passes for Pittsfield residents. For example, a visitor from Boston could be changed $6 as a non-resident, while a Pittsfield resident could park for $4. The fairest price for a season pass would be the same price that is paid for a lakefront dock.

Finally, this measure could have the added, unintended, effect of clearing out the congestion of the parking area for boat trailers. If there was an employee or official regularly checking for parking permits, non-trailered vehicles would park in the spaces provided for them.

User Suggestions

In addition to the recommendations our team has proposed, we felt obligated to acknowledge the enthusiasm and care for the lake that so many respondents showed in their replies to our survey. Pittsfield residents *love* Lake Onota, and they are bursting with ideas about what they think would make it even better. Clearly not all of these can be considered, or are even possible, but they remain suggestions put forth by people who care about their local lake.

- Public boat wash
- Dog litter bag dispensers
- Summer educational programs for children
- Adult programs on water safety
- New playground equipment
- More vendors in the summer months
- A restaurant
- Graveled walking paths

- Locking the gate at night
- Motor-size regulations
- Further reduction of speed limit
- Install rope and floats outlining swimming areas
- Water fountain at Burbank Park
- Stable lifeguard hours
- More picnic tables and barbecues
- Import sand to improve beach
- Public transportation to the lake
- Creating lawn maintenance restrictions for lakefront property owners
- Requirement of a boating course for motorized craft operators

Conclusion

We approached our team's planning problem by creating a public survey to attempt to unearth specific problems on Lake Onota and to assess specific solutions. Unlike other projects, our final goals were somewhat open-ended, and throughout the process we depended on our survey to provide us with the feedback we would need to make our final recommendations.

What we discovered was that over and above discreet lake issues, Lake Onota was desperately in need of a more organized approach to management. The issues on the lake and in Burbank Park were caused by a lack of public awareness and a dearth of cohesive action and goals on the part of the city. Use of Lake Onota has been completely unrestricted and unregulated. The public considers it to be an invaluable community resource, but becomes disappointed when no authority steps in to impose order and establish objectives for present and future use. Furthermore, law enforcement officials are equally to blame. Pittsfield Police, and Massachusetts Environmental Police, share the blame because of their minimal attentiveness to enforcement of state-wide and local laws.

This is why our recommendations are primarily suggestions about general improvements to overall use of Lake Onota. In the creation of a Lake Commission based

on the model provided by Lake Quinsigamond, Onota will be provided with a governing body representative of the city, the residents, and the lake users. This governing body will be able to most effectively address the issues and opinions brought to light by our survey. Furthermore, involving the local police in the effort will emphasize that Onota is a public space as in need of enforcement as any neighborhood. Finally, the public must be involved to a greater degree. Our survey indicates that the public holds the lake and its resources in great esteem, but that a lack of consideration for other users, and a lack of regard for one's own impact on the lake and park, are the causes of most people's complaints about Lake Onota. If more information about Onota as a public space, and about the impact of individual responsibility and influence, were available, this measure in itself has the potential to alter the current situation on Lake Onota.

We feel that the results of our survey, coupled with the general and specific recommendations contained in this report, have provided our clients with the tools to drastically improve nearly all of the public's concerns. Though the Lake Commission will take some time to develop, such a body will ultimately ensure that Lake Onota is always properly stewarded. Pittsfield truly has a natural 'jewel' in Lake Onota, which only makes it more imperative that the community is taking an active role in making it a cleaner, safer, and more enjoyable place.

---

[i] *Diagnostic/Feasibility Study for Onota Lake, Pittsfield, MA*, International Technology Corporation. 1987.
[ii] Ibid.
[iii] *Housatonic River 5-Year Watershed Action Plan*, Berkshire Regional Planning Association, 2002.
[iv] Ibid.

[v] *Lake Onota Preservation Association Annual Report*, Lake Onota Preservation Association, 2005.
[vi] *Onota Lake Invasive Species Management Plan*, Berkshire Regional Planning Association and ENSR. June 2005.
[vii] *Onota Lake Long-Range Management Plan*, Lake Onota Preservation Association. 2004.
[viii] Ibid.
[ix] Ibid.
[x] ITC.
[xi] "Why Sheep?" Sheeptacular, Pittsfield! <http://www.sheeptacular.org/whysheep.html>
[xii] www.pittsfield.com
[xiii] www.plastiquarian.com/gernelect.htm
[xiv] yosemite.epa.gov/nl/npl-padnst.html
[xv] www.cleanupge.org/demisdeeds.htm
[xvi] Laureyns, 14 March 2006.
[xvii] McGrath, Jim. Personal Communication, 14 March 2006.
[xviii] *Housatonic River 5-Year Watershed Action Plan*, Berkshire Regional Planning Association, 2002.
[xix] *Lake Onota Preservation Association Annual Report*, Lake Onota Preservation Association, 2005.
[xx] Cuyler, Lew, "Yes on three foot drawdown . . . but more???" *Lake Onota Guardian.* Winter 2006.
[xxi] Laureyns, 14 March 2006.
[xxii] Ibid.
[xxiii] US Census Bureau, 2000.
<http://factfinder.census.gov/home/saff/main.html?_lang=en>
[xxiv] Conversation Jim McGrath and Dick Laureyns, ……
[xxv] http://www.surveymonkey.com/MySurveys.asp?Rnd=0.390072
[xxvi] http://www.surveymonkey.com/MySurveys.asp?Rnd=0.390072
[xxvii] http://www.surveymonkey.com/MySurveys.asp?Rnd=0.390072
[xxviii] Survey Results, Question 26
[xxix] Survey Results, Question 20
[xxx] Survey Results, Question 15
[xxxi] Conversation Wayne Sampson . . ..

Appendix A: Onota Lake User Survey

Onota Lake User Survey

This survey collects information about the recreational and lake management activities that take place at Onota Lake. The survey is part of a Williams College class project in collaboration with the Pittsfield Department of Parks and Recreation. Your answers will help to direct future lake management efforts at Onota Lake. We value your opinions.

Onota Lake Use:

1. Do you regularly use/visit Onota Lake? (circle one)
YES, go to question 4
NO, go to question 2

2. If you answered NO to question 1, please describe your reasons for not using/visiting Onota Lake. If you use a different body of water (lake, pond, or swimming pool) please mention it.

3. If you answered NO to question 1, what would have to change about Onota Lake before you would start using/visiting it regularly?

If you answered NO to question 1 and have answered questions 2 and 3, please go to Personal Information.

4. If you answered YES to question 1, on average how many times per year do you use/visit the lake?

a. Less than 10 times per year
b. 10-25 times per year

c. 25-50 times per year
d. 50-75 times per year
e. More than 75 times per year

5. Please indicate, on average, the number of days per year you participate in the following activities on Onota Lake. Then please evaluate the quality of that experience on Onota Lake, by circling a number from 1-5. 1 is bad, 5 is great, and 3 is neutral. If you do not participate in an activity, please leave that row blank.

Activity	Days per year	Quality of experience (1-5)
Motor boating		Bad 1—2—3—4—5 Great
Swimming		Bad 1—2—3—4—5 Great
Rowing and sculling		Bad 1—2—3—4—5 Great
Canoeing		Bad 1—2—3—4—5 Great
Kayaking		Bad 1—2—3—4—5 Great
Waterskiing		Bad 1—2—3—4—5 Great
Fishing		Bad 1—2—3—4—5 Great
Sailing		Bad 1—2—3—4—5 Great
Jet skiing		Bad 1—2—3—4—5 Great
Enjoying the scenery		Bad 1—2—3—4—5 Great
Sunbathing		Bad 1—2—3—4—5 Great
Walking		Bad 1—2—3—4—5 Great
Picnicking		Bad 1—2—3—4—5 Great
Socializing		Bad 1—2—3—4—5 Great
Going to summer concerts		Bad 1—2—3—4—5 Great
Other		Bad 1—2—3—4—5 Great
_____		
Other		Bad 1—2—3—4—5 Great
_____		

6. Do you do these activities at other lakes, ponds, rivers, or swimming pools in the area?
YES, go to question (7)
NO, go to question (8)

7. If you answered YES to question 6, please list the other bodies of water you use.

_____
_____

8. How frequently do you visit or use the public facilities provided at Burbank Park?
   a. Never (please skip question 12)
   b. Less than 10 times per year
   c. 10-25 times per year
   d. 25-50 times per year
   e. 50-75 times per year
   f. More than 75 times per year

9. If you use Burbank park, please indicate the facilities you use there?
_ Public Beach/ Swimming
_ Boat Launch
_ Fishing Pier
_ Controy Pavilion events
_ Park grounds
_ Volleyball
_ Sports
_ Other _____

10. Comments: What do you like/dislike about Burbank Park? What would make you use the facilities more frequently?

Lake Issues:

11. Do you consider any of the issues, listed below, to be problems at Onota Lake? 1 means that the issue is not a problem at Onota Lake. 5 means that the issue is a severe problem.

Noisiness of motors	1------2------3------4------5
Irresponsible use by motorboats	1------2------3------4------5
Irresponsible use by jet skis	1------2------3------4------5
Speeding by motor watercraft	1------2------3------4------5
Water weeds	1------2------3------4------5
Crowding on the water	1------2------3------4------5
Crowding at the beach	1------2------3------4------5
Conflicts between motorized and human powered recreation	1------2------3------4------5
Transportation to lake	1------2------3------4------5

Lack of public amenities (e.g. benches, picnic tables)	1------2------3------4------5
Shortage of safe swimming areas for children	1------2------3------4------5
Shortage of safe swimming areas for adults	1------2------3------4------5

12. Please describe problems you have seen at Onota Lake.

What do you value about Onota Lake?

13. Please rate the importance of the following lake attributes. 1 means that you place no value on the attribute. 5 means that the attribute is essential to you.

Scenery or pleasing views	1------2------3------4------5
Weed free swimming	1------2------3------4------5
Weed free boating	1------2------3------4------5
Clean water	1------2------3------4------5
Peace and quiet	1------2------3------4------5
Nature	1------2------3------4------5
Community gathering space	1------2------3------4------5

14. What are your favorite things about Onota Lake? What about the lake do you want to remain unchanged?

Changes to lake management

15. Please rate the importance of the following possible changes to lake management. 1 means you strongly oppose the change. 5 means you strongly support the change.

Restrictions on motor boating (e.g. speed limits	1------2------3------4------5
Restrictions on development around the lake shore	1------2------3------4------5
Public transportation to and from Burbank Park	1------2------3------4------5
Development of a lake user's organization	1------2------3------4------5
Creation of no wake hours on the lake	1------2------3------4------5
Division of lake into speed limit zones	1------2------3------4------5

Conservation of the lake's plant and animal life	1------2------3------4------5
Use of herbicides to treat invasive weeds	1------2------3------4------5
Hiring a lake security officer to enforce regulations	1------2------3------4------5

16. If you were the manager of Onota Lake, what would you change?

Willingness to pay for changes at the lake

17. How much would you be willing to pay per day to park at Burbank Park if your money paid a security officer to enforce boating regulations?

a. Not willing to pay for parking
b. $2
c. $4
d. $6
e. $8

18. How much would you be willing to pay per day to swim at Burbank Park if your money went to maintaining the quality of the swimming experience (weed control, maintenance of facilities)?

a. Not willing to pay for swimming at Burbank Park
b. $2
c. $4
d. $6
e. $8

19. How much would you be willing to pay for each use of the boat ramp at Burbank Park, if your money paid a security officer to enforce boating regulations?

a. Not willing to pay for boat ramp use
b. $2
c. $4
d. $6
e. $8

20. Please answer this question only if you own a pier or dock on the lake. How much would you be willing to pay for an annual dock permit, if the money paid a security officer to enforce lake regulations?

a. Not willing to pay for a dock permit
b. $10
c. $20
d. $30

e. $40

21. What is your opinion of collecting user fees at the lake for the purpose of hiring a security officer?

Personal Information:

22. Are you a Pittsfield resident? YES NO

23. Your proximity to the lake is:
    a. 0-1 mile
    b. 1-5 miles
    c. 5-10 miles
    d. 10 or more

24. Your annual household income is:
    a $0-25,000
    b $25,001-50,000
    c $50,001- 100,000
    a. $100,000 or more

25. The number of children in your family is:
    b. None
    c. 1-2
    d. 3-4
    e. 5 or more

26. Select any of the following groups with which you are associated:
    a. Lake Onota Preservation Association
    b. Berkshire Rowing and Sculling Society
    c. Onota Fishing Club
    d. Williams Rowing
    e. Other lake organization (specify):
    _____

27. Please indicate if you own any of the following:
_ Motorboat with horsepower 1-15
_ Motorboat with horsepower 16-45
_ Motorboat with horsepower 46 and over
_ Jet ski
_ Crew shell
_ Row boat

_ Canoe
_ Kayak
_ Sailboat
_ Pier or dock on the lake
_ Other watercraft _____

We would like to thank you for your time in completing this survey. If you are interested in knowing more about current Onota Lake issues, or volunteering to help with various lake activities or projects, please call Jim McGrath at 413.499.9343. If you have any further questions or reactions, please state them below. You may leave this survey at the follwing locations: the Department of Parks and Recreation, the Senior Center, City Hall, or the Library. Thanks!

Appendix C: Sample Survey Study, May 1st

As of May 1st, there have been 120 responses to our Onota Lake User Survey. The following is a synthesis of some of the most important results so far. Of those surveyed:

- 76.1% regularly visit Onota Lake; 29% visit the lake less than 10 times per year, 33.7% visit the lake 10-25 times per year, and 16.9% visit the lake 75 times per year or more.

- Motor boating, swimming, going to summer concerts, enjoying the scenery, and walking are the activities that the majority of people engage in at the lake.

- As for the quality of experience of activities on the lake, the activities with a majority rating of a great quality of experience were motor boating, enjoying the scenery, walking, socializing, and going to summer concerts. The activities with a majority rating of a good quality of experience were rowing and sculling, jet skiing, sailing, and picnicking. And the activities with an average majority rating were motor boating, swimming canoeing, kayaking, water skiing, fishing, and sunbathing.

- 50% of respondents use the facilities at Burbank Park less than 10 times per year.

- The issues at the lake that were rated by a majority as a severe problem were irresponsible use by jet skis, water weeds, and conflicts between motorized use and human powered recreation. The issues that were rated a problematic by a majority were noisiness of motors, irresponsible use by motor craft, and speeding by motor watercraft. The only issue that the majority found to be not a problem at all was transportation to the lake.

- As for attributes that those surveyed valued about the lake, every option returned the highest value by the majority: scenery or pleasing views, weed free swimming, weed free boating, clean water, peace and quiet, nature, and community gathering space.

- A majority of respondents strongly supported many of the proposed changes to the lake. All of the following received a rating of 5, strongly supporting the change: restrictions on motor boating (e.g. speed limits), restrictions on development around lake shore, creation of no wake hours on the lake, division of lake into speed limit zones, conservation of lake's plant and animal life, the use of herbicides to treat invasive weeds, and the hiring of a lake security officer to enforce boating and park regulations, which had the highest majority of 61%.

- A majority of lake users are not willing to begin paying for various lake services. Those services are paying for swimming at Burbank Park, paying for dock permits, and paying for boat ramp use.

- 52% of respondents live within 1-5 miles of the lake, and 60% of respondents are also LOPA members.

Besides the multiple choice questions on the survey, there were also open-ended questions that rendered us some very enthusiastic responses when given the opportunity. In response to the question about what needed to change about Onota Lake before a non-user would start using the lake, a majority of answers focused on the cleanliness of Burbank Park, as well as tighter supervision of the park, beach, and illegal activities such as drinking. In fact, across the board the open ended questions rendered similar responses; concern for safety and cleanliness in the park, as well as concern for safety on the water as motor boats universally disregarded swimmers and non-motorized boaters, and used their craft recklessly. Some examples of these comments are:

Question: If you answered No to question 1, what would have to change about Onota Lake before you would start using/visiting regularly?

- “I would love to see it cleaner. I would also like to see more families and less people smoking and hanging out.”

- “Charge a fee per car like any other State, so money will be availble to maintain the Lake. Have patrols that can "Fine" people for abusing the property and make them pick up after themselves. No dogs. I'm not against people, I have visited Parks in other states; Connecticut, New York, Vermont etc., and the rules are not as Lax as Massachusetts. Make the people responsible when they use the parks.”

- “Goose Poop!!!!!”

- “KEEP A CLEAN ENVIRONMENT, GATE IT. PUT THE UNDESIRABLES SOMEWHERE ELSE.”

Question: If you were the manager of Onota Lake, what would you change?

- “1. Have a gate at entry that would be locked at dusk, opened at dawn. 2. Charge user fees. Residents could buy season access permit. Day use would be more. Visitors would pay more. 3. User fees would pay for upkeep of park, including security.”

- “I'd look for creative ways to serve all users. Speed zones, areas, and hours have their place, but should not be inflexible. I like to kayak with binoculars and camera some days, but I also like to play in the waves on others. Pennsylvania has no hunting on Sunday, maybe we could have no power boats on Sunday ... or some creative variation of something similar.”

- "Ban Motorized boats."

- "I like the idea of a lake manager. Can I apply? Someone who would be dedicated just to the lake. Keeping it clean, maintained, staffed, and to keep the illicit and illegal actions out of the park!!"

Question: What is your opinion of collecting user fees at the lake for the purpose of hiring a security officer?

- "Only for parking . . . anything else I would not accept."

- "Fees should reflect the impact of the user. Hand carried boats should be way less than power boats. Family picnic less than a corporate party, etc."

- "User fees would limit some people, especially low income families, use of the lake for family picnics and swimming, as well as skating in the winter months."

- "Should not have to pay to hire a security officer to be at the lake all the time. Random checks to monitor activity and ticket any abusers will get the message out and future abusers will stop."

- "I feel that the residents of Pittsfield should not pay a fee. Although you should charge the people from outside the city. In the town of Lee, they have a lake for Lee residents only."

- "Only way to maintain the lake."