Appendix A

Big Green Lake 2012 Citizen Survey Results

Submitted by J. McNelly

A total of 1000 surveys were sent to 500 riparian residents who owned property around Big Green Lake and 500 residents within the Big Green Lake Watershed; 55.7% (557) of the surveys were returned. Of the surveys that were returned 535 were filled out in their entirety (no questions were skipped) for a completed survey rate of approximately 96%.

Of the surveys returned 20.5% (111) respondents who answered the question lived on or owned property on the South Shore of Big Green Lake, 19% (103) lived or owned property on the North Shore of Big Green Lake, 12.7% (69) were located in the city of Ripon, 9.6% (52) were located in the city of Green Lake, 6.3% (34) were located in the Terrace on Big Green Lake, 5.9% (32) were located in rural Ripon, 5.9% (32) were located in Silver Creek Inlet, 5.2% (28) were located in Beyer's Cove, 5.0% (27) were located in Norwegian Bay, 3.7% (20) were located on the Mill Pond, 3.7% (20) were in Rural Green Lake, and 2.6% (14) were located in County K Marsh. Sixty eight percent of all respondents lived on or around Big Green Lake and 32% lived in the watershed but not on the lake.

The length of time that survey respondents had lived, owned property, or recreated on Big Green Lake varied greatly. Responses ranged from 1 year to 100 years, with an average of 28 years.

Respondents were asked to describe their primary use of the property they owned or lived on; 53% (281) of those that answered the question indicated that their primary use was as a seasonal resident, 40.4% (214) were as a primary resident, 2.6% (14) were as a rental, 1.9% (10) was agricultural, 1.1% (6) was commercial, and 0.9% (5) was undeveloped. While these percentages are only for survey respondents, they can serve as representative of the larger population around Big Green Lake. In order to reach the more transient populations that use Big Green Lake (seasonal residents, rentals, etc.) different methods of communication and outreach may need to be considered. There are also a number of different types of properties on and around Big Green Lake that may have different uses and interests in the lake and those too, should be considered when choosing management and outreach strategies. Seventy eight percent (384) of respondents who answered the question used their property throughout the year, 24.2% (121) used their property during May through August, 8.8% (44) used their property September through December, and 1.0% (5) used their property January through April.

Survey respondents were also asked why they had chosen to live on or near Big Green Lake. Of the respondents that answered the question 62.7% (298) indicated the quality of the lake, 45.9% (218) indicated recreational opportunities, 40.4% (192) indicated family tradition, 37.9% (180) indicated the low number of people using the lake, 34.7% (165) indicated distance from primary residence, 23.8% (113) indicated good property value, 21.1% (100) indicated retirement, and 20.4% (97) indicated surrounding communities. Respondents could also write in a response to this question. The most frequent write-in answers were for work or job and because family lived here. The reasons that respondents have chosen to own or use property on or near Big Green Lake, should be considered when choosing management strategies. Some of these reasons may be a desire to protect aspects of the lake, improve others, or be considered as drivers for change in management actions.

There are a number of organizations that help guide the future and management strategies on Big Green Lake. These include the Fond du Lac County Conservation Department, Green Lake Association, Green Lake Conservancy, Green Lake County Conservation Department, Green Lake Sanitary District, and Wisconsin DNR. The survey asked respondents how familiar they were with these organizations and agencies. Survey respondents indicated that they were most familiar and had contact/communication with the Green Lake Association (49.2%, 262) and Green Lake Sanitary District (53.9%, 287). Respondents were aware of the Green Lake Conservancy (46.5%, 245), Green Lake County Conservation Department (47.5Z%, 243), and the Wisconsin DNR (49.2%, 263). The Fond du Lac County Conservation Department was the least familiar to respondents, with over half (63.7%, 323) not being aware of the agency.

To gain a better understanding of factors that may influence a respondent's familiarity with these organizations this question was broken down by lakeshore respondents versus watershed respondents. For lakeshore respondents only, most were not aware of the Fond du Lac County Conservation Department (68%, 234), but did have personal contact with the Green Lake Association (60%, 219) and with the Green Lake Sanitary District (68%, 250). Most lakeshore resident were aware of, but had no personal contact with the Green Lake Conservancy (47%, 170) and the Green Lake County Conservation Department (49%, 170). Lakeshore survey respondents were closely split between having had personal contact with the Wisconsin DNR (49%, 177) and being aware of them but having no contact (46%, 167). Looking at the same question for watershed respondents only, most were not aware of the Fond du Lac County Conservation Department (55%, 86) and were aware of but had no personal contact with the Green Lake Association (45%, 72), Green Lake Conservancy (46%, 73), Green Lake County Conservation Department (45%, 69), Green Lake Sanitary District (54%, 85) and the Wisconsin DNR (57%, 92). It is also important to note that while it appears more watershed respondents had less contact with a number of agencies then lakeshore respondents, there were also more watershed respondents that were completely unaware of these agencies then lakeshore respondents. For example the Green Lake Association had 23% (36) of watershed respondents were unaware of the organization versus 4% (14) of lakeshore respondents. There are similar numbers for the Green Lake Conservancy where 35% (55) of watershed respondents were unaware but only 11% (40) of the lakeshore respondents were unaware and the Green Lake Sanitary District where 22% (34) of watershed respondents were unaware versus 3% (11) of the lakeshore respondents. The sanitary district also had much higher personal contact rates with lakeshore respondents (68%, 250) versus watershed respondents (18%, 29). It appears that the location of the survey respondents does play a role in the amount of personal contact and awareness that they had with local organizations. For organizations more closely tied to Big Green Lake, such as the Green Lake Association, Green Lake Conservancy, and Green Sanitary District, lakeshore residents not only had more personal contact but were also more aware of these organizations. There may be an opportunity for these organizations to reach out to watershed residents to share information about their organizations, what they do, and how watershed residents can participate in them and make a difference.

A follow-up question asked survey respondents how important they felt each organization was to the protection, conservation, and preservation of Big Green Lake. The Green Lake Sanitary District (64.9%, 336), The Green Lake Association (45.3%, 234), Green Lake Conservancy (44%, 227), and the Wisconsin DNR (50%, 258) were all indicated to be very important to the future of Green Lake. Respondents were somewhat split on their belief of how important the Green Lake County Conservation Department was to the future of Green Lake. 36.6% (188) of respondents felt that the Green Lake County Conservation Department was very important and 32.9% (169) were unsure of its importance. Respondents were largely unsure about the role of the Fond du Lac County Conservation Department with 53.9% (275)

unsure of its importance. The results of these two questions can show how familiar survey respondents are with local organizations and agencies. The results can show which organizations/agencies may be able to have a greater presence in or on Big Green Lake and the watershed so citizens can better understand the roles they are able to play in the protection, conservation and preservation of the lake. Again, this question was broken down by lakeshore respondents versus watershed respondents. Most lakeshore respondents felt that the Green Lake Association (50.7%, 176), Green Lake Conservancy (49.1%, 171), Green Lake Sanitary District (71%, 248), and the Wisconsin DNR (49%, 170) were very important to the protection, conservation, and preservation of Big Green Lake. Lakeshore respondents were somewhat split on the Green Lake County Conservation Department with 39% (135) feeling that they were very important and 32.3% (111) unsure. Most lakeshore respondents were also unsure (57.6%, 197) about the importance of the Fond du Lac Conservation Department.

Most watershed respondents felt the Green Lake Sanitary District (50.3%, 80) and the Wisconsin DNR (51.3%, 81) were very important to the protection, conservation, and preservation of Big Green Lake. Watershed respondents were split on how important they felt the Green Lake Association was with 32.3% (51) responding that they were very important and 31% (49) responding that they were unsure. Respondents were also split on the Green Lake Conservancy with 34.2% (54) responding that they were unsure and 31.6% (50) responding that they were very important. Most watershed respondents were unsure how important the Fond du Lac County Conservation Department (45.6%, 72) and the Green Lake County Conservation Department (34.4%, 55) were. It is important to notice that while there is a leading percentage of importance for some of the different organizations, some of them have very close percentages.

The results of this analysis show that there is quite a bit of uncertainty among watershed respondents about local organizations and agencies. The same holds true with the lakeshore respondents as they were the least familiar with the Fond du Lac Conservation Dept. and were the most unsure about this organization. Lakeshore respondents seem to find high importance in all organizations that may have some influence over Big Green Lake, which shows that these organizations should all be included in future decisions regarding Big Green Lake.

Survey Respondents were also asked about their prior knowledge of efforts underway to protect, restore, and conserve Big Green Lake and its watershed. Respondents indicated that 8% (42) felt that they had a very high knowledge, 27.3% (144) felt they had a high knowledge, 35.6% (188) felt that they had between low and high knowledge, 19.9% (105) felt they had a low knowledge, and 9.3% (49) felt they had a very low knowledge. This question was cross-tabulated with the location of survey respondent's property they owned or lived on. The highest percentage of respondents who felt they had very high knowledge of the watershed came from North Shore (34.1%, 14). The majority of respondents who felt they had a high knowledge (27.9%, 39) and between high and low knowledge (23%, 43) were from South Shore residents. The majority of respondents who felt they had a low (21.6%, 22) or very low prior knowledge (41.7%, 20) were from the City of Ripon. These results indicate those that felt they had the highest levels of prior knowledge were located on Big Green Lake and those that had the least were located in the watershed, which is what one would expect. There may be opportunities for increased knowledge among watershed residents and how their actions potentially affect Big Green Lake.

Recreation

Respondents were asked when during the year do they use Big Green Lake. Respondents had the opportunity to choose all options that applied to them. The majority of respondents indicated they use the lake in the summer (50.4%, 264), 42% (220) use the lake year round, 24.4% (128) use the lake in the fall, 17.2% (90) use the lake in the spring, and 3.6% (19) use the lake in the winter. Another 9.2% (48) indicated no one ever uses the lake. It is important to note that Big Green Lake is used year-round for various activities and those should be taken into consideration when management strategies are being chosen. It is also important to note a rather significant portion of the respondents indicated that no one uses the lake, however that does not mean it isn't used for visual or aesthetic purposes and the quality of the lake is still important.

Respondents were also asked about the variety and frequency of activities they participated in on Big Green Lake. The five activities respondents most frequently participated in (More than 10 times in 2011) were motorized boating (57.3%, 296), scenic viewing (53.1%, 274), swimming (52.8%, 275), solitude (52.2%, 259), and Entertaining (43.7%). Activities with the lowest participation (not at all) were hunting (87.6%, 436), ice fishing (79.8%, 390), and jet skiing (69.3%, 345). It is evident that Big Green Lake is a heavily used recreational lake. It is interesting that both motorized and silent sports are among the most frequent forms of use. As recreational use continues on the lake, and may even increase in the future, care will need to be taken to ensure there is balance between all recreational uses so that conflict is kept at a minimum.

An important aspect of recreational use of Big Green Lake is the ability for users to have quality access to the lake. Respondents were asked how they felt about the quality, quantity, and location of boat landings, shore fishing sites, and handicapped accessible sites. When respondents were asked about the location of access sites to Big Green Lake, 55.6% (294) felt the locations of boat landings were adequate and 40.1% (209) felt the location of shore fishing sites were also adequate. The majority of respondents (62.2%, 324) were unsure about the location of handicapped accessible sites. When asked about the quality of access sites to Big Green Lake 53.8% (284) respondents found the quality of boat landing satisfactory. Respondents were unsure about the quality of shore fishing sites (42.3%, 220) and the quality of handicapped accessible sites (66.7%, 344). The majority of respondents (69.7%, 365) found the quantity of boat landings on Big Green Lake was adequate. Respondents were unsure about the quantity of shore fishing sites (42.8%, 220) and handicapped accessible sites (66.5%, 341). It appears that the public is satisfied with the quality, quantity, and location of boat landings on Big Green Lake. Respondents seem less sure about shore fishing sites and handicapped sites. It is unclear whether this is due to a lack of these sites or a lack of information on their location.

As shown earlier in the survey results motorized boating is one of the most popular forms of recreation on Big Green Lake. Survey respondents were asked to choose a statement that best described the boat traffic that Big Green Lake received. The statements with the highest percentage of respondents were split with 37.6% (198) answering that the traffic was not enough to bother them and 35.9% (189) answering they have had to modify their plans on occasion because of boat traffic. Only 3.8% (20) of respondents indicated they had to regularly change their plans and an additional 3.8% (20) indicated there was so much boat traffic that they didn't use the lake much anymore. From these results, there does not appear to be significant conflicts with the motorized use of the lake, which is something that will want to be continued. This may be something to watch and re-evaluate in the future if it appears that conflicts are on the rise.

Respondents were also asked to describe their experiences with other boaters. 48.6% (211) indicated that a few boaters had been discourteous and broken rules, 38% (165) indicated that boaters had been courteous and law abiding, 8.5% (37) indicated that significant numbers of boaters had been discourteous and broken rules, 3% (13) indicated that some boaters intimidate and harass other boaters, and 1.8% (8) indicated that they had generally quit boating because of the behavior of other boaters. If respondents had indicated that they had some sort of encounter with discourteous boaters they were then asked where on Big Green Lake the conflicts occurred. The majority of respondents (64.9%, 163) indicated near the shore. Mid-Lake (29.1%, 73) and Norwegian Bay (24.7%, 62) were the next two areas with the highest percentage of respondents. Since the majority of residents indicated the near shore area was where conflicts had occurred there may be opportunities to share information about proper recreational use near shores with lake users or to seek out other ways to resolve this potential issue.

Shorelines

Healthy shorelines are an important aspect of a lake's ecosystem. The questions in this section of the survey help to gather information about the perceived state of the shorelines and development on the shores of Big Green Lake. Survey respondents were asked what statement best represented their opinion of the shorelines around Big Green Lake. The majority of respondents (61.2%, 305) indicated they felt there are many structures along most of the shoreline that can be seen from the water. Thirty five percent (175) indicated some structures are visible from the water but only along parts of the shore, 3.4% (17) indicated they knew there are structures along the shore, but they are not visible from the water, and 0.2% (1) indicated there aren't any structures (walls, piers, building, etc) along the shore that are visible form the water.

Respondents were also asked how satisfied they were with the amount of development around Big Green Lake's shore. Overall, respondents were fairly satisfied with the amount of shoreline development with 53% (268) of respondents. The remaining respondents were split with 20.9% (106) being very satisfied, 17.0% (86) being not too satisfied, and 9.1% (46) being not at all satisfied. Respondents were asked how they felt about the shoreline development around Big Green Lake. The majority of respondents (60.4%, 303) felt there was just the right amount of shoreline development. Of the remaining respondents 33.3% (167) felt there was too much shoreline development and 6.4% (32) felt Big Green Lake could use more shoreline development.

Overall, most of the survey respondents seemed pleased or were okay with the current state of the shorelines and the amount of development around Big Green Lake. An area to further investigate in the future is the issue of shoreline vegetation on properties around the lake.

Aquatic Plants

Survey respondents were asked which statement best described the current amount of aquatic plant growth, including algae, in Big Green Lake for the fishery and the wildlife. The majority of respondents were unsure for both the fishery (55.5%, 283) and for wildlife (58%, 290). This may be an indication that the public has a lack of information about the aquatic plant communities in Big Green Lake, especially when it comes to how those communities affect the fisheries and wildlife.

Aquatic vegetation can potentially impact a survey respondent's use of the lake. Respondents were first asked how often aquatic plant, including algae, negatively impacted their use of Big Green Lake. Forty two percent of respondents (212) indicated they were sometimes impacted, 19.8% (100) indicated they

were rarely impacted, 17.9% (90) indicated they were often impacted, 16.9% (85) indicated they were never impacted, and 3.4% (17) indicated they were always impacted.

Respondents were then asked as to what level their use of Big Green Lake was negatively impacted by aquatic plant growth, including algae. Fifty five percent (275) of respondents had a moderately negative impact, while 32.6% (163) had no impact, and 12.4% (62) had a great negative impact.
It doesn't appear that citizens have any real issues with the aquatic plant growth on Big Green Lake. However, to take a closer look, the results of the impacts of aquatic plant growth on the level of use of Big Green Lake were cross tabulated with a respondent's location on Big Green Lake. Respondents who lived on the South Shore of Big Green Lake indicated they had moderately native impacts (26.2%, 72) or great negative impacts (18.3%, 11). Respondents who lived in the City of Ripon indicated that they predominantly had no negative impact (23.2%, 37).

While aquatic plant growth may have negative impacts on the recreational uses of a lake it does play a critical role in the health of a lake's ecosystem. Respondents were asked as to what degree they believed aquatic plants, including algae, have functions that maintain the health of Big Green Lake. Forty two percent of respondents (209) indicated that they agreed aquatic plants had functions that help maintained the health, 36.5% (182) neither agreed or disagreed, 10.6% (53) strongly agreed, 8.8% (44) disagreed and 2.2% (11) strongly disagreed. Over half of all of the respondents agreed to some degree that aquatic plant communities were important to the health of Big Green Lake. This information, with the results of the above indicated that respondents are tolerant of aquatic plant communities and are aware of their benefits.

While native aquatic plants and animals are beneficial to a lake, non-native aquatic invasive species can be detrimental to a lake. Examples of aquatic invasive species include carp, white perch, zebra mussels, water milfoil, purple loosestrife and more. Respondents were asked if they had ever heard of aquatic invasive species (AIS). Ninety one percent (471) of respondents had heard of AIS while 8.5% (44) had not heard of them. While the majority of respondents had heard of AIS, there are a relatively large number of respondents that had not heard of them. This is a sign that further information needs to be shared with lake users and local citizens.

Respondents that answered they were aware of AIS, were then asked if they believed invasive species are present in Big Green Lake. Eighty eight percent (419) of those respondents indicated they did believe there were invasive species present in Big Green Lake, 10.5% (50) were unsure, and 1.5% (7) indicated they did not believe any invasive species to be present. Again, the majority of respondents were aware invasive species were present in the lake but there were respondents that were unsure and some believed there were not. Those respondents not aware of the invasive species present in the lake have a greater potential to spread invasive species either throughout the lake or to other local lakes. Respondents that answered they believed that there were AIS present in Big Green Lake were then given a list of potential invasive species and asked which they felt were the biggest threat to Big Green Lake. The five top perceived threats to Big Green Lake included zebra mussels (87.2%, 353), Common Carp (66.2%, 268), shoreland plants (purple loosestrife, spotted knapweed, garlic mustard) (39%, 158), Eurasian water milfoil (33.6%, 136), and Asian carp (32.1%, 130). These perceived threats should be compared to the actual invasive species currently present in Big Green Lake and those that pose the greatest threat. This information should be shared and promoted.

Respondents were also asked how much of the plant growth in Big Green Lake were invasive species. The majority of respondents (54.7%, 229) felt some plant growth is invasive, 36% (151) were unsure, 5.5% (23) felt some plant growth is invasive, and 3.8% (16) felt very little plant growth is invasive.

Water Quality

Often the citizens who live in or near Big Green Lake are greatly aware of the changes that take place within a lake, including changes in water quality. Respondents were asked how a number of factors had changed on Big Green Lake since they had lived on or near it. The largest number of respondents indicated a somewhat increase in the amount of algae (38.9%, 199), the amount of aquatic plants (33.2%, 167) and the amount of shoreline development (40.1%, 203). The largest number of respondents indicated no change in the number of songbirds (42.3%, 214), the quantity of shoreline wildlife (42.1%, 212), and the quantity of waterfowl (37.2%, 187).

Respondents were also asked about changes in water quality, clarity, and the quality of fishing. The greatest number of respondents indicated no change in water quality (36.9%, 189) and water clarity (35.3%, 180). The greatest number of respondents indicated that they were unsure about any changes in the quality of fishing (37.7%, 191). All of these results should be compared with actual measures of these factors to see if the perceived changes are what is actually taking place on Big Green Lake. When respondents were asked about the water quality in in Big Green Lake for a number of factors the largest number of respondents indicated the water quality is good for wildlife habitat (49.1%, 251), for swimming (52.6%, 272), for boating (48.7%, 251), for fish habitat (45.3%, 232), and excellent for scenic beauty (44.2%, 227).

Respondents were also asked about the overall water quality in Big Green Lake during the summer of 2011. Forty six percent of respondents indicated the water quality was good, 27.5% (137) said fair, 13.1% (65) were unsure, 8% (40) said excellent, and 5.4% (27) said poor.

Respondents were also offered a list of potential problems for lakes in general. They were asked how much they agreed or disagreed that each factor was a *current* issue regarding the water quality in Big Green Lake. Most respondents disagreed that the following factors were a current issue in Big Green Lake; polluted swimming areas (28.8%, 141), too little aquatic plant growth (36%, 176), and too little algae (36.3%, 174). Most respondents neither agreed nor disagreed that noise pollution (28.7%, 142), light pollution (30.9%, 152), and grass clippings and leaves from near shore and/or city storm drains (28.6%, 142) were a current issue for the lake. Most respondents agreed that too much aquatic plant growth (33%, 162), too much algae (36.3%, 179), natural runoff from shorelines and/or stream banks (31%, 152), runoff from shoreline development and clearing (30.5%, 153), fertilizers and pesticides from residential runoff (37.3%, 187), storm water runoff from city roads and feedlots (28.9%, 144), and the carp population (36.9%, 184) were all current issues for Big Green Lake. Most respondents were unsure about the loss of desirable fish species, contaminated fish, and the health risks to people and pets from algae blooms. It should be noted that a number of the factors had very close percentages and none carried a majority. The perceived issues should be taken into consideration when looking at possible management strategies. These issues should also be compared to any issues that have been identified by professionals on the lake. If there are differences between the perceived issues and the actual issues that the lake faces those should be further explored and possibly addressed.

Land Management

The way land is managed in a lake's watershed and on its shores can have an impact on the water quality and the overall health of the lake. It can also impact a user's enjoyment of the lake and the scenery they experience on the lake.

Respondents were asked to what extent the land purchased around or near Big Green Lake by land trusts and conservancy organizations enhance the overall quality of their lake experience. Thirty seven

percent (190) of respondents felt that these purchased lands greatly enhanced their experience, 27% (137) felt they somewhat enhances their experience, 15% (76) were neutral, 10.2% (52) felt they had little to no effect, and 10.4% (53) were unsure.

Respondents were also asked how well the present land use regulations protect habitat and water quality in the lake. Forty five percent of respondents (230) felt the present regulations were fairly adequate, 31.4% (160) were unsure, 11.2% (57) felt they were very adequate, 7 .1% (36) felt they were not at all adequate, and 5.3% (27) they were not too adequate. There is a large percent of respondents who were unsure. The results do not allow us to understand if these respondents do not know what the current land use regulations are or how they protect the habitat and water quality. It appears those that know the regulations are happy with them. However, this may be a sign that the current land use regulations should be shared so citizens have a better idea of their impact on the lake.

In order to gain an idea of shoreland management practices in place on Big Green Lake, respondents were asked about the land use management practices that can improve water quality on their own properties. Natural shorelines occurred most often naturally on the landowner's properties (41.2%, 173). Most respondents would consider installing shoreline restorations (31.8%, 126), runoff diversion practices (37.2%, 149), native flowers, shrubs, and trees (29.9%, 127), shoreland stabilization (33%, 134), rain barrels (40.6%, 164), and water permeable surfaces (30.8%, 114). Most respondents would not consider installing a reduction in hard surfaces (28.3%, 116) or no mow areas (32.6%, 134).

Respondents had not heard of shoreline buffer strips (32.2%, 128) or rain gardens (39.2%, 159). Most respondents seem open to a variety of land use practices that would benefit the lake. Relatively few landowners have actually installed any of these practices and this may be an area to focus efforts that could benefit the lake. There were also practices that most respondents haven't heard of and those are areas where information can be shared.

There was interest in examining this question further to determine if the location of respondents showed any differences in land management practices that were being used. This question was broken down by lakeshore survey respondents and watershed respondents and then cross tabulated. Lakeshore respondents indicated that natural shorelines existed naturally on 49.5% (151) of the properties. Popular practices that had been installed on lakeshore respondent's properties included native flowers, shrubs, and trees (30.16%, 92) and shoreland stabilization (30.53%, 91). Practices that were popular for consideration among lakeshore respondents included runoff diversion practices (36.67%, 106), native flowers, shrubs, and trees (29.18%, 89), shoreland stabilization (32.21%, 96), rain barrels (40.6%, 119), and water permeable surfaces (32.06%, 84). Practices that most lakeshore respondents were not willing to consider included no mow areas (35.6%, 106), and reduction in hard surfaces (29.86%, 89). Most lakeshore respondents had never heard of rain gardens (37.88%, 111) or shoreline buffer strips (30.17%, 88). The two practices that had a large number of respondents that had not heard of them are two relatively simply practices that can be of great benefit to the lake. There can be some confusion regarding the name of shoreline buffer strips which may have led to the high number of respondents who were not familiar with this practice. However, they may also be the need for increased information about these practices and their potential benefits to the lake.

There is no land use management practices listed that most of the watershed respondents indicated occurred naturally or had already been installed on their properties. This in part may be due to the fact they do not own shorelines, and some of these practices are specific to shoreline properties. However, most water shed respondents indicated they would consider natural shorelines (30.84%, 33), shoreline restoration (37.37%, 37), runoff diversion practices (39.42%, 41), native flowers, shrubs, and trees

(33.63%, 37), shoreland stabilization (37.37%, 37), and rain barrels (39.80, 41). Most watershed respondents would not consider no mow areas (26, 66%). Watershed respondents were unfamiliar with shoreline buffer strips (37.11%, 36), rain gardens (42.85%, 45), no mow areas (27.61%, 29), reduction in hard surfaces (28.70%, 31), and water permeable surfaces (30.39%, 31). There is some indication that the watershed respondents are simply not aware of many of these practices, even though some of them are applicable to watershed residents. There may be opportunities to share information about these practices and their potential benefits to not only rural properties but also Big Green Lake. It is important to note no single land use practice had a majority of respondents (over 50%).

To give a better idea of what might motivate landowners to make changes in land management practices, respondents were provided a list of potential motivators and asked to identify their top choices. The top five motivators for land use change were improving water quality (65.8%, 296), increasing the natural beauty of property (59.1%, 266), provide better habitat for fish and wildlife (58.9%, 265), increasing property value (57.8%, 260), and benefiting children/grandchildren (43.8%, 197). These motivators can be used in a number of different ways. Management practices can be promoted using these motivators as reasons for implementation. For example, the management action of shoreland restorations or natural shorelines can be promoted or shared with landowner as a way to improve water quality, save landowners money and increase habitat for fish and wildlife.

Last, respondents were asked how much they agreed or disagreed with statements regarding land use and management of Big Green Lake as it relates to improving water quality in Big Green Lake. Unfortunately, most respondents neither agreed nor disagreed with any of the statements provided.

Climate Change

Climate change refers to any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period (decades or longer). Climate change may result from natural factors, such as changes in the sun's intensity or slow changes in the Earth's orbit around the sun; natural processes within the climate system; and human activities that change the atmosphere's composition. These factors have the potential to have dramatic impacts on a lake's ecosystem. Respondents were asked how much they agreed or disagreed that climate change has the potential to affect a list of conditions of Big Green Lake. Most respondents agree climate change has the potential to affect all of the factors listed.

Demographic Information

Basic demographic information was gathered on survey respondents. Of the respondents that answered the questions 64.3% (328) were male and 35.7% (182) were female. The ages of respondents varied greatly from 22 to 100 with the average age being 62. Newspapers and websites were the most popular ways to receive information both with 40.2% (198) of respondents. Younger generations tend to find their information through electronic media while older generations tend to find their information through more traditional means of media. Because there are such varying ages in citizens within the watershed, it would be advised to employ a variety of means for communication. This also holds true because of the differences in citizen's residency (seasonal versus year round).