



TOWNSHIP OF SEGUIN

Prepared for: Mayor & Council

Department: Community Services

Agenda Date: April 2, 2012

File Number: CS-FC-2012-001

Subject

Water Quality Monitoring & Septic Re-inspection Program Report

Recommendation

THAT Council receives the Water Quality Monitoring and Septic Re-inspection Program report for information.

Purpose of Report

To provide the Council of the Township of Seguin a summary of key findings of the 2011 Water Quality and Septic Re-inspection Program.

Background/Analysis

The Township of Seguin's Water Quality and Septic Re-inspection Program is a proactive strategy to preserve the natural environment and promote stewardship throughout the community. This report will provide an update for the 2011 year for both programs.

Water Quality Program:

Introduction:

In an ongoing effort to preserve the lakes in our area, Seguin Township introduced a new Water Quality Monitoring Program in the summer of 2008. The program is run alongside the Septic Re-inspection program as a way to monitor our lakes by gathering water samples for analysis and performing tests on our lakes.

Operation:

The Water Quality Monitoring Program consists of two phases, one in May and the other in August. In May, dissolved oxygen testing and secchi disk readings are taken on our specified lakes and water samples are taken and transported to a lab in Dorset to be tested for phosphorous. In August, dissolved oxygen testing and secchi disk testing are completed.

In 2011, 43 lakes were chosen and tested in Seguin Township. In the programs inaugural year, 24 lakes were tested, however due to program efficiencies, more lakes are able to be tested yearly. The more lakes tested during this timeline the

more historical data we will have to monitor future sensitivities to phosphorus or potential problems that may arise.

The following summary and recommendations have been received from Hutcheson Environmental.

- ✓ A total of 68 of 128 lakes (53%) in Seguin Township have measured spring total phosphorus concentration data and at the conclusion of the 2014 spring monitoring program, these lakes will each have a minimum of 3 years of data.
- ✓ Rankin Lake has displayed a decreasing trend in total phosphorus concentration since 2002. Continued monitoring of this lake is recommended in both 2012 and 2013 to evaluate whether the changes in total phosphorus concentrations are part of the natural variability of the lake or whether the decreasing trend is due to other changes in phosphorus loading and/or runoff conditions. *However Rankin Lake still remains highly sensitive and over threshold. The model threshold for Rankin Lake is 4.1 ug/L*
- ✓ Due to the complex lake shape and bathymetry of Horseshoe Lake, we recommend that spring total phosphorus sampling should be conducted at 3 locations in the lake in 2012 and 2013 to support multi-basin modeling of the lake when the model is revised in 2014.
- ✓ To date, August monitoring of dissolved oxygen, temperature, lake depth and Secchi depth has been completed for the 47 of the 68 monitoring lakes. This data has been useful to flag shallow lakes, high DOC lakes and lakes that potentially undergo anoxia for refinement of the model in 2014.
- ✓ We recommend that monitoring in 2013 focus on the 21 lakes that have not yet been monitored. If additional time or funding is available, we recommend that a subset of lakes be sampled for dissolved organic carbon or total phosphorus concentration at 1-m off bottom. HESL will work with Seguin Township to select the most appropriate lakes for additional sampling if this is possible.

Since 2002, 68 of Seguin's 128 lakes have been tested for total phosphorus concentration by either the Seguin Township Monitoring Program or the Lake Partner Program (in which residents take part in the monitoring process).

Historical data is key to the success of Seguin's Water Quality Monitoring Program. That is, over time, historical data will provide a more accurate reflection of a lakes health and will contribute greatly to lake stewardship within the region. The Ministry of the Environment recommends having a minimum of two years of spring overturn phosphorus data to be 95% confident of being within 20% of the mean annual concentration of a lake. For our lakes, 47 lakes now have at least two years of monitoring data, in comparison to 39 lakes in 2010, and 29 lakes in 2009.

With continued monitoring, approximately half of the Seguin Lakes will have at least 3 years of data by 2014 when a review of our Water Quality Model and Development Capacity will take place. Obtaining this data will also provide the Planning Department a more reliable tool to accurately assess shoreline development capacity.

For more information on the lakes tested in the 2011 year, please review the attached student "Water Quality Program 2011 Year End Report". For a copy of the Hutcheson Environmental 2011 report, please see the Director of Community Services.

Septic Re-inspection Program: Introduction:

Since the implementation of the Septic Re-inspection Program in 2002, the main goal has been to inspect existing sewage disposal systems for malfunction, deterioration, erosion and overall compliance with the Ontario Building Code (OCD). Through our partnership with the North Bay Mattawa Conservation Authority, the program has completed its tenth successful season of inspections.

Operation:

Throughout June, July and August (first two weeks) our students inspect septic systems throughout Seguin and encourage regular maintenance and proper care of these systems to avoid any possible threats to the environment.

Upon examination of data in conjunction with the North Bay Mattawa Conservation Authority in early 2011, it was found that a number of files required follow up in order to close. Therefore, unlike previous years, 2011 focused a majority of the season on previous re-inspections and the closing of files. In total, students were able to re-inspect 130 properties across 21 lakes including the follow-ups from previous years. Of the 130 new inspections and site follow ups, 81 property files were CLOSED as no violations were found and 49 were left OPEN for inquiry and/or violations existed.

Of the 130 properties re-inspected in 2011, 87 properties were found to be in violation, including illegal black and grey water discharge, structures and objects on leaching beds, illegal forms of outdoor showers, septic bed overgrowth and unsafe conditions. An overwhelming majority of violations were subject to overgrowth of the septic bed. The eighty-seven property owners received a letter or phone call highlighting the violation and what kind of remedial action was necessary.

Overall, the Community Services Department and North Bay Mattawa Conservation Authority have been working together to streamline the Septic Re-inspection program. In the past, all records for re-inspections of Seguin properties have been paper filed and not electronically entered into a usable database. The current documentation has made it difficult to plan multi-years in advance or to review on a map where re-inspections have taken place.

As a result, the NBMCA was able to hire an intern this year to input all re-inspection data dating back to 2002, with the assistance of Carla Salt in the Seguin Township Building Department. Together they were able to enter all information into a database where it will be transferred into the Land Manager System and GIS system of the Township to allow for easy accessibility of information as well as other applications. Key to this database will be the ability to integrate the Septic Re-inspection Program information to the Water Quality Program data to indicate any possible trends between malfunctioning sewage systems and increasing phosphorus levels. In addition, once all properties located on a specific lake are inspected, the data will be useful to choose future properties to inspect as well as indicate locations that may have deficiencies with respect to the Ontario Building Code.

For the complete year end report, please see the attached "Septic Re-Inspection Program Year End Report 2011"

Policy & Budget Implications

N/A

Conclusion

In conclusion, both the Seguin Water Quality Monitoring Program and the Septic Re-inspection Program are integral components to the Stewardship of our natural resources. Continued monitoring of our lakes will provide important historical data essential to the ongoing assessment of development capacities and the health of our lakes.

Re-inspecting septic systems throughout the municipality will provide an indication of the violations present on residential properties. More importantly, it will provide an educational tool for residents focusing on the importance of maintaining septic systems through stewardship of their own properties.

We look forward to another successful year in 2012.

Respectfully Submitted By:

Kelly Krist **Director of Community Services**

Reviewed By:

Tom Stockie **CAO**

Michele Fraser **CFO**

Attachments

Water Quality Program 2011 Year End Report
Septic Re-Inspection Program 2011 Year End Report

Seguin Township and North Bay-Mattawa
Septic Re-Inspection Program

Year End Report 2011

Bonnie Ward & Taylor Bliss



Introduction

The Septic Re-Inspection program run by Seguin Township and the North Bay-Mattawa Conservation Authority has now completed its tenth successful season of inspections. For generations, families and visitors alike have come to this area to visit and enjoy the beauty that this land has to offer and it has become a priority for the township and the people of the township to preserve this ~~beauty~~ ^{historic beauty} for generations to come. Since the beginning of this program in 2002, it has been the goal and objective of the re-inspection program to inspect ~~existing~~ ^{existing} septic systems in the area for certain deficiencies outlined by the Ontario Building Code (O.B.C.). Additionally, since the beginning of the program, water quality has been a main concern by both visitors to the area and the Township itself. Three years ago the Water Quality Monitoring Program was introduced and has been in affect for four years. The Water Quality Program occurred during the month of May and two weeks in August. This meant that the Re-inspection Program took place during June, July, and the first two weeks of August.

This year, the program had two new students. The first couple weeks consisted of learning about septic systems, how to inspect, pull permits and files. The students from the previous year put together files ready for us to inspect. This was helpful in running the program smoothly, along with the helpful student handbooks, that previous students had written, and the staff at the North Bay Mattawa Office. The more knowledge we had about sewage systems, ~~we were able to~~ ^{now speak for our past years} determine what was considered unsafe and what could seriously harm the beautiful lakes that reside in Seguin Township.

This season, there was a fair amount of focus on previous re-inspections. There were a lot of follow-ups that needed to be done because previous owners had not done what was recommended by the seasonal inspectors. Initial inspections were carried out on Baby Lake, First Lake and Storm Lake. In total, 130 properties were inspected including follow-ups from previous years. We appreciate all the co-operative property owners we encountered while doing our job, because their co-operation is an important part of the program

Water Body and Inspection Statistics

During the summer of 2011, records were kept for general statistics of the properties inspected. This includes the number of systems inspected on each lake, deficiencies and violations, and types of deficiencies found on each lake. This year 130 properties were inspected across 20 lakes in Seguin Township. Of the 130 new inspections and site follow-ups, 81 properties were CLOSED as no violations were found and 49 were left OPEN for inquiry and/or violations existed.

The table below illustrates this distribution of site inspections by lake:

Number of Properties Visited Organized by Lake:	
Lake	Number of Inspections
Baby Lake	9

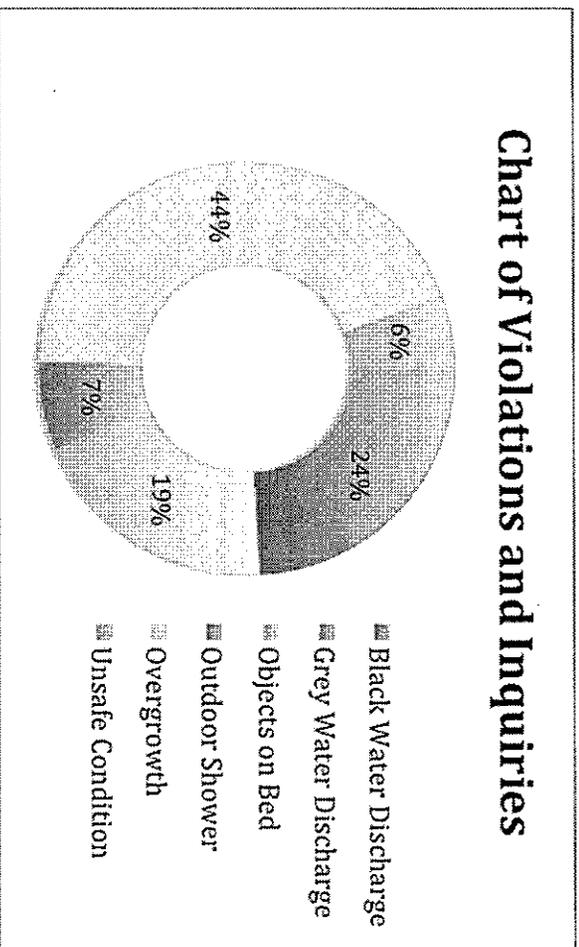
First Lake	19
Haines Lake	7
Horseshoe Lake	8
Lake Joseph	9
Lower Fry Lake	1
Maple Lake	5
McDonald Lake	2
McGown Lake	2
McLeans Lake	7
Murdock Lake	12
Otter Lake	5
Rankin Lake	2
Richmond lake	5
Roberts lake	5
Lake Rosseau	3
Storm Lake	9
Sucker Lake	15
Sugar Lake	3
Virtue/Portage Lake	1
Windfall Lake	1
TOTALS	
21 Lakes	130 Re-Inspections

Violations and Discrepancies

This year, before any new inspections were done, we had to re-visit properties that had been left as OPEN files that had exhibited found violations to Ontario's Building Code. The primary violations that we inspectors aimed to find on our site inspections were illegal black and grey water discharge, structures and objects on leaching bed, illegal forms of outdoors showers, septic bed overgrowth and any unsafe condition of the septic system. From the previously visited properties and the newly inspected properties that were done this year, a total of 87 violations were found. Of these properties that possessed one or more of these violations, they were notified by a letter or a phone call to highlight the violation that existed on their property and what kind of remedial action can be done in order to resolve the discrepancy. Thus, the table below illustrates the amount of each violation that was found through all of the inspections.

Number of Property Violations and Inquiries	
Black Water Discharge	0
Grey Water Discharge	21
Objects on Bed	17
Outdoor Shower	6
Overgrowth	38
Unsafe Condition	5
Total	87

Chart of Violations and Inquiries



Findings from Newly Visited Properties

Baby Lake:

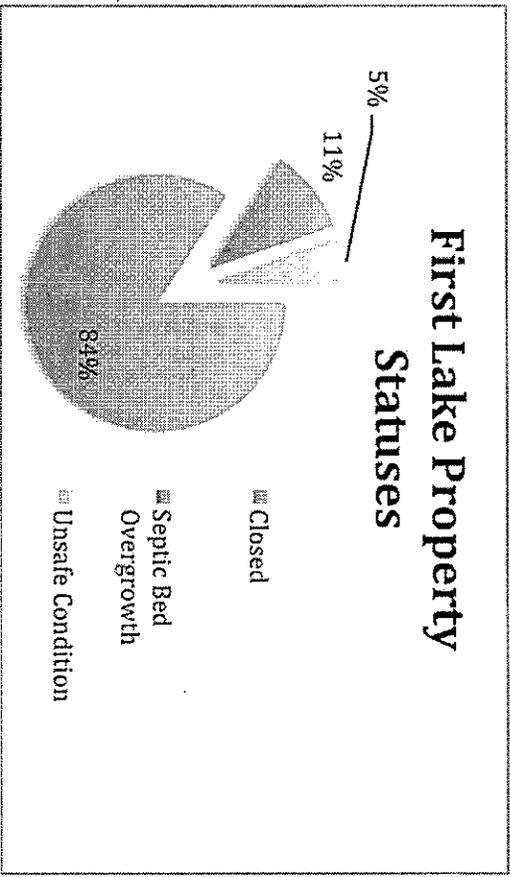
On Baby Lake, 9 properties were inspected and all of the properties files were closed for being maintained and clear of any violations.

First Lake:

On First Lake, 19 properties were inspected. Of the 19 properties, 16 were closed leaving 3 remaining open. From the open properties, 2 properties had a large degree of septic bed overgrowth, and the 1 property that exhibited an unsafe condition had visible distribution pipes from a leaching bed that were not fully buried and the system was still in use. Statistics on the type of deficiencies and property status are as follows:

Property Status's	Percentage
Closed	84.2%
Septic Bed Overgrowth	10.5%
Unsafe Condition	5.3%

First Lake Property Statuses

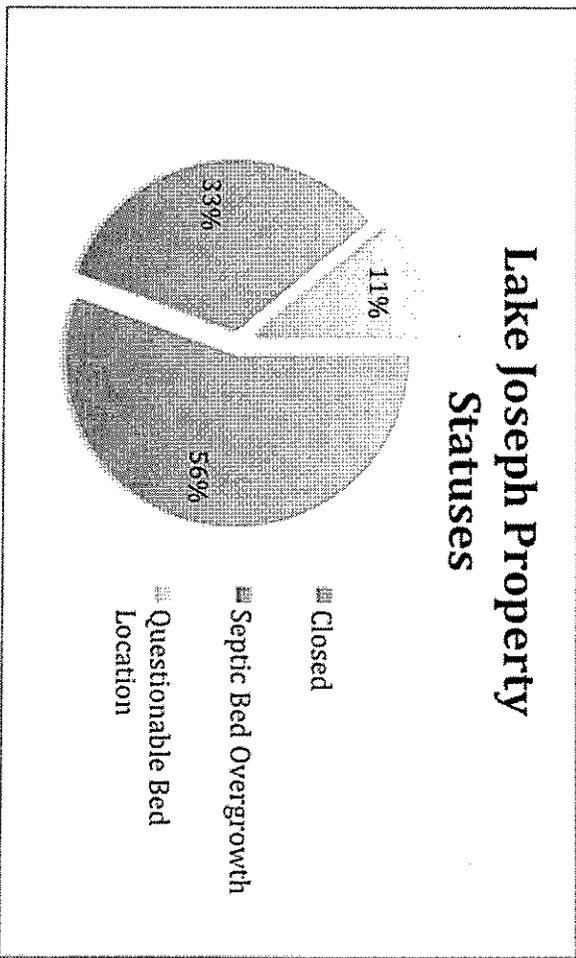


Lake Joseph:

A total of 9 properties were inspected on Lake Joseph. From this total, 5 of the 9 properties files were closed for being maintained and clear of any violations. The remaining 4 files included 3 incidents of vegetation overgrowth on the leaching bed. The final open property we were unable to find any indication of the whereabouts of the leaching bed location.

Property Status's	Percentage
Closed	55.6%
Grey Water Discharge	33.3%
Questionable Bed Location	11.1%

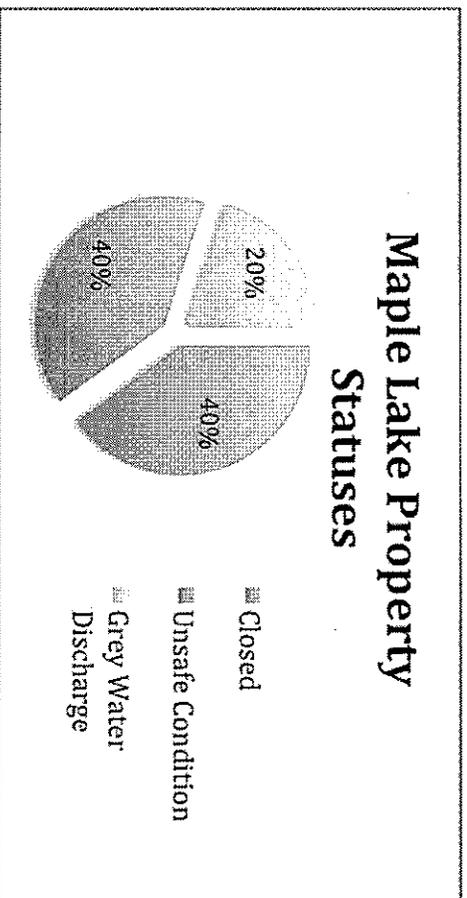
Lake Joseph Property Statuses



Maple Lake:

On Maple Lake, 5 properties were inspected. Of the 5 properties, 2 were closed, leaving 3 that remained open. 1 of the 3 open files included a property with illegal grey water discharge coming from the kitchen sink and outputting directly onto the ground beneath the dwelling. The other 2 properties were considered to be in unsafe condition because one property had class 1 privies that were not structurally strong and did not meet Ontario's building code requirements. These privies are to be removed and filled. The last unsafe, open file was also made into an occurrence file, which will go into even further investigation. This property had a visible, aged, steel tank protruding from the ground along with suspicious, visible pipes for possible discharge of grey water and bodily waste.

Property Status's	Percentage
Closed	40%
Grey Water Discharge	20%
Unsafe Condition	40%



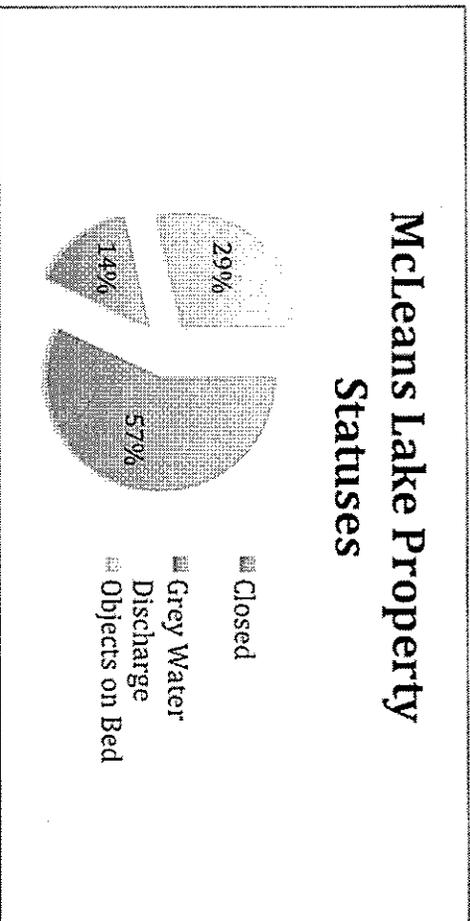
McDonald Lake:

On McDonald Lake, only 2 properties were inspected that bordered this water body. Of the two files, both could be closed, but one of the properties possessed a total daily design sanitary sewage flow greater than 10 000 L/day as it was a trailer park. The Ministry of the Environment regulates all properties that have a design flow of 10 000 L/day or greater.

McLeans Lake:

On McLeans Lake, 7 properties were inspected. Of the 7 properties, 4 were closed, leaving 3 still open. Two of the open property files had objects like a fire pit or large brush pile located on the septic bed and the last property in violation had an illegal grey water discharge from kitchen fixture units directly onto land.

Property Status's	Percentage
Closed	57%
Grey Water Discharge	14%
Objects on Bed	29%

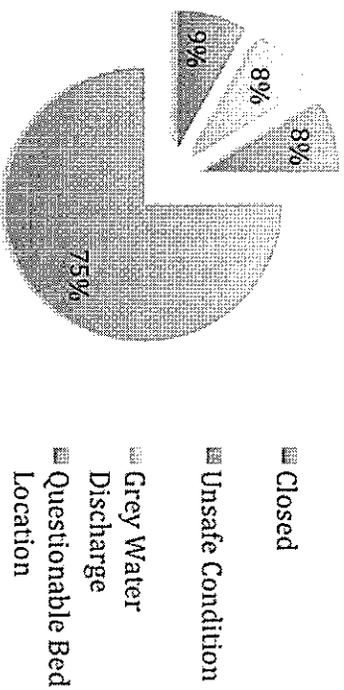


Murdock Lake:

On Murdock Lake, 12 properties were inspected. 9 properties were closed, and 3 were left open for follow-ups. The 3 open files consisted of violations and inquiries of leaching bed location, unsafe condition, and grey water discharge. The property that had a sewage system that was seen to be in unsafe condition possessed a class 1 privy with rotting framing and nearing collapsing. The incidence of grey water discharge came from an outdoor shower that did not have a proper catchment tray to direct the discharging water to a proper disposal.

Property Status's	Percentage
Closed	75%
Grey Water Discharge	8.33%
Questionable Bed Location	8.33%
Unsafe Condition	8.33%

Murdock Lake Property Statuses

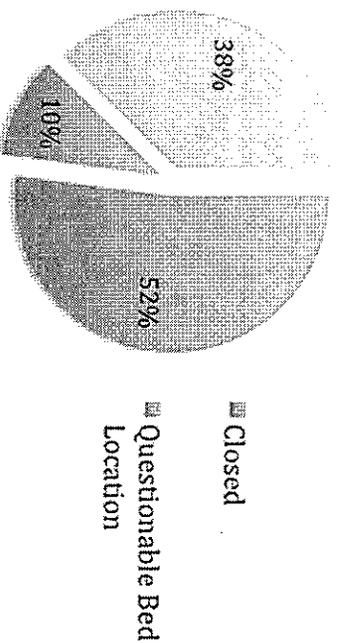


Roberts Lake:

A total of 5 inspections were done on Roberts Lake, and only 2 of the 5 files were closed. This left 3 open files, which consisted of 2 cases of illegal grey water discharge and 1 unsafe condition. The 2 grey water discharge incidents came from an outdoor shower without a proper disposal of discharged water and an uncapped, kitchen plumbing pipes that discharged directly to the open ground. The unsafe condition comes from a half-buried, steel septic tank with a large crack and hole on the top of it. The owner was immediately contacted and is now in the process of replacement.

Property Status's	Percentage
Closed	40%
Grey Water Discharge	40%
Unsafe Condition	20%

Roberts Lake Property Statuses



Storm Lake:

On Storm Lake, 9 properties were re-inspected and all of the properties files were closed for being maintained and clear of any violations. Only one property on Storm Lake used a class 4 septic tank and leaching bed, all of the other dwellings relied on their class 1 privy for human waste only. Privy violations did exist at first on Storm Lake for not meeting the requirements of Ontario's Building Code. Once the owners were notified action was taken to resolve all issues found.

Windfall Lake:

On Windfall Lake, 1 property was inspected and this file was closed for being maintained and clear of any violations for its recently installed class 4 septic tank and filter bed.

Challenges Encountered

This year, like most years, there were different challenges that arose that affected the program. When we came into the job we were both new so we had to learn how to inspect properties, input files, pull permits and the general basics of the job. A lot of time was put into these tasks. Many previous and new files were missing permit information, therefore extra time had to be put in for retrieving the required files for further details on the permit. Several permits we needed had to come from the North Bay office and be faxed to us as only physical paper copies existed. These files had to wait to be inspected until all the information was gathered before visiting the site. With the time spent pulling permits and getting information, there was less time to work out in the field. Time was also taken during June to studying the Ontario Building Code with Robin for the On-site Sewage Inspector Certification Exam. These slowed and paused re-inspections, as we were unable to write our exam at the beginning of the summer. There were some inspections that were done without proper certification. The main challenge that was encountered in our attempt to close files was the lack of response from property owners. Without the co-operation of each property owner we are unable to close the violations rectified and therefore files remain open. Despite this, a good number of inspections were conducted and the program was adjusted accordingly.

This year was the fourth year of the Water Quality Program and was run along side of the Septic Re-Inspection program. Although it is good for our lakes, it caused for there to be less time to complete inspections due to lost 2 months of the program. Along with these challenges there were many benefits. We learned a lot studying and writing the exam, it allowed us as inspectors to know exactly what is required under the Ontario Building Code. This gained knowledge allowed us to properly inspect and assess septic systems with greater depth.

Improvements

This year we continued to document in a way that was easier to access and understand. Every morning all files were documented into the Seguin re-inspection database, with a total of 130 files entered. This way it was easier to keep track of all property information, permits issued and any deficiencies noted on site. Our Ontario Building Code, On-site Sewage Inspector Certification Exam was also booked as soon as we got here so we were able to study and write the exam as soon as possible.

Another improvement made was the students from last year opened existing files in an effort to make the program run smoother, 62 files were opened corresponding to Baby Lake, Storm Lake and First Lake. These three lakes are over-threshold with respects to Phosphorus as noted in the 2009 Water Quality Report submitted to the Township of Seguin by AECOM. This decreased the amount of time needed to get permits from the Township office in Seguin and from the Conservation Authority office in North Bay.

An improvement that could have been made is the documentation of the lakes that were done in previous years. Using a map of the township and crossing off each lake, the year that it had been completed and if the lake is over-threshold with respects to Phosphorus. Setting it up like this would make it easier to choose the lake to re-inspect and it would allow for the water quality and septic re-inspection portions of the program to be integrated together indicating any possible trends between malfunctioning sewage systems and increasing phosphorus levels. Secondly, once a lake is chosen to be re-inspected a map of all properties located around the lake may be useful in crossing off all properties inspected and indicating locations that may have deficiencies with regards to the Ontario Building Code.

Thanks

Like most years, the program would not be successful without the help of many individuals. The Re-Inspections Program is a team effort that involves the work of many different individuals. We would like to thank Kelly Krist, Chris Madej, and Chris Mahon from Seguin Township. Through out the summer they helped us co-ordinate vehicles, provided us with Township maps, and assisted us with locating permits for the new lakes we re-inspected this year.

We would also like to thank Robin Allen, Jen Albert and Rick Brier from the North Bay-Mattawa conservation Authority office in Parry Sound. Providing a comfortable environment to learn and understand every aspect of the job. Without their support the Re-inspection program would not be possible and we appreciate them taking time from their work to help us with any problems or questions that may have arisen. As well we would like to thank Madeline Poitras from the North Bay office. Madeline

graciously took time to find the permits that we were unable to locate at the Township of Seguin office.

Conclusion

Looking back on the summer, the inspectors feel very satisfied with what has been done. We were able to close many files that have been left open for a couple of years, ensuring that the quality of the lakes in the Township of Seguin are preserved for future generations to come. Even though some problems arose during the job, we were able to solve them with the help of many people from Seguin Township and the North Bay Mattawa Conservation Authority. The experience and knowledge we gain from the program will help us greatly in the future and we thank everyone again for their support.

Seguin Township and North Bay-Mattawa
Septic Re-Inspection Program

Year End Report 2011

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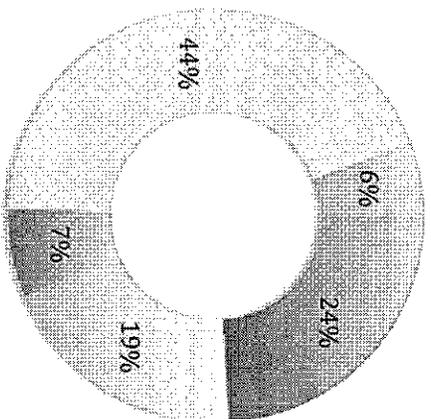
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21 Lakes	

Violations and Discrepancies

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Chart of Violations and Inquiries



- Black Water Discharge
- Grey Water Discharge
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Findings from Newly Visited Properties

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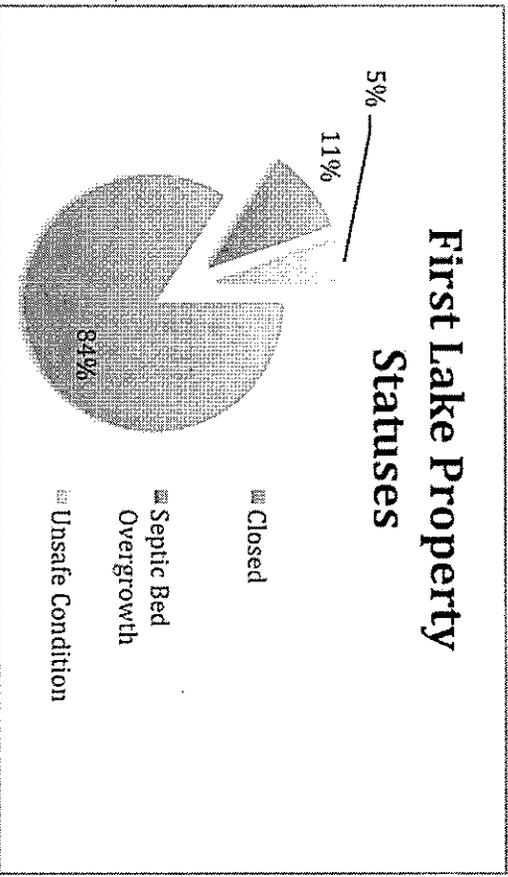
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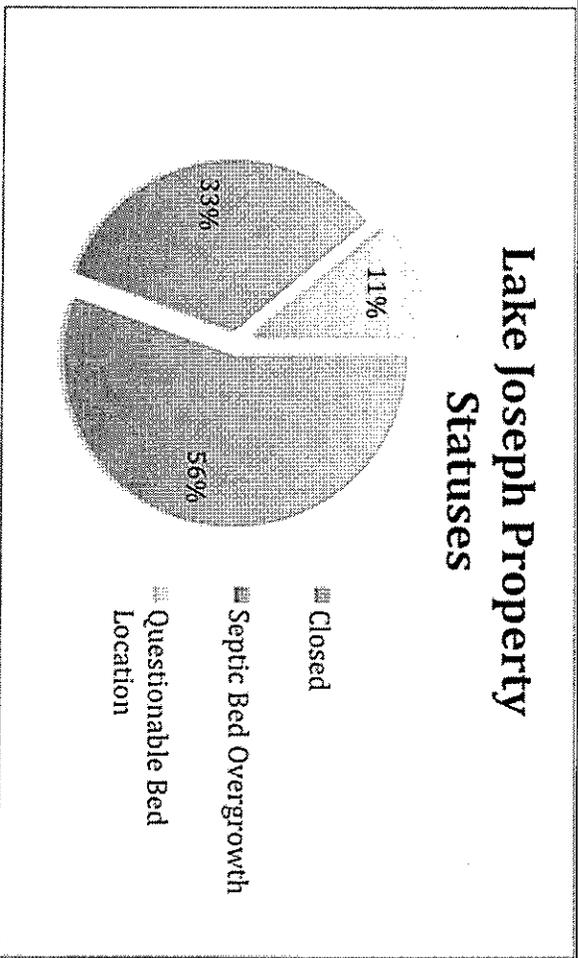


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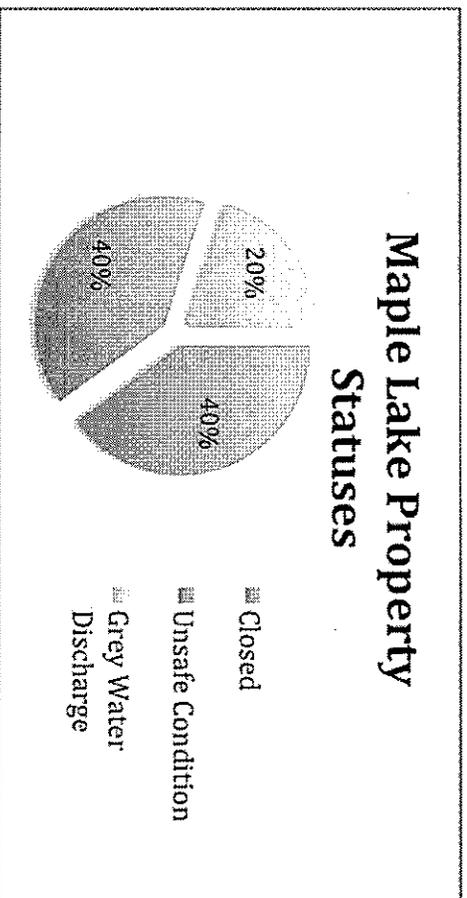
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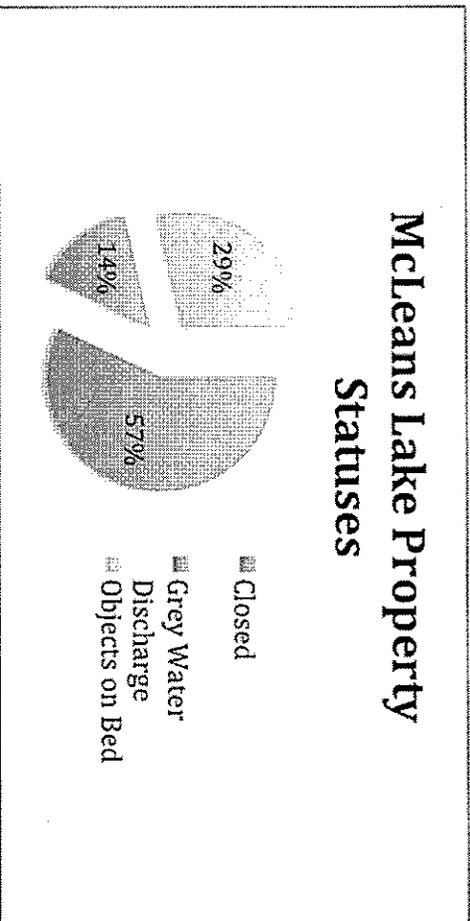
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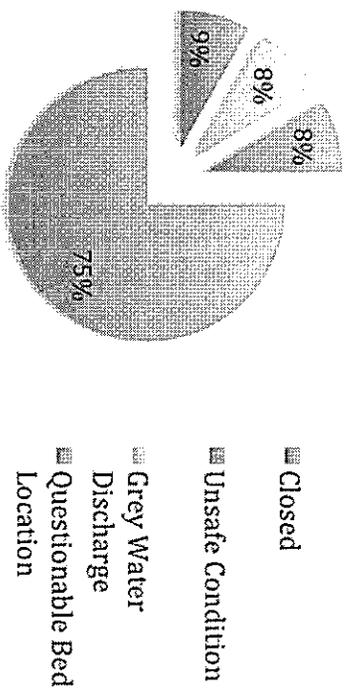


Murdock Lake:

On Murdock Lake, 12 properties were inspected. 9 properties were closed, and 3 were left open for follow-ups. The 3 open files consisted of violations and inquiries of leaching bed location, unsafe condition, and grey water discharge. The property that had a sewage system that was seen to be in unsafe condition possessed a class 1 privy with rotting framing and nearing collapsing. The incidence of grey water discharge came from an outdoor shower that did not have a proper catchment tray to direct the discharging water to a proper disposal.

Property Status's	Percentage
Closed	75%
Grey Water Discharge	8.33%
Questionable Bed Location	8.33%
Unsafe Condition	8.33%

Murdock Lake Property Statuses

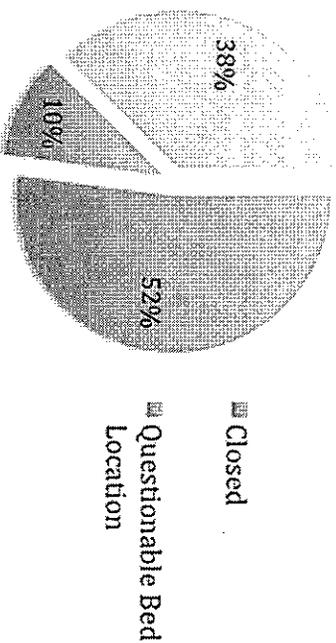


Roberts Lake:

A total of 5 inspections were done on Roberts Lake, and only 2 of the 5 files were closed. This left 3 open files, which consisted of 2 cases of illegal grey water discharge and 1 unsafe condition. The 2 grey water discharge incidents came from an outdoor shower without a proper disposal of discharged water and an uncapped, kitchen plumbing pipes that discharged directly to the open ground. The unsafe condition comes from a half-buried, steel septic tank with a large crack and hole on the top of it. The owner was immediately contacted and is now in the process of replacement.

Property Status's	Percentage
Closed	40%
Grey Water Discharge	40%
Unsafe Condition	20%

Roberts Lake Property Statuses



Storm Lake:

On Storm Lake, 9 properties were re-inspected and all of the properties files were closed for being maintained and clear of any violations. Only one property on Storm Lake used a class 4 septic tank and leaching bed, all of the other dwellings relied on their class 1 privy for human waste only. Privy violations did exist at first on Storm Lake for not meeting the requirements of Ontario's Building Code. Once the owners were notified action was taken to resolve all issues found.

Windfall Lake:

On Windfall Lake, 1 property was inspected and this file was closed for being maintained and clear of any violations for its recently installed class 4 septic tank and filter bed.

Challenges Encountered

This year, like most years, there were different challenges that arose that affected the program. When we came into the job we were both new so we had to learn how to inspect properties, input files, pull permits and the general basics of the job. A lot of time was put into these tasks. Many previous and new files were missing permit information, therefore extra time had to be put in for retrieving the required files for further details on the permit. Several permits we needed had to come from the North Bay office and be faxed to us as only physical paper copies existed. These files had to wait to be inspected until all the information was gathered before visiting the site. With the time spent pulling permits and getting information, there was less time to work out in the field. Time was also taken during June to studying the Ontario Building Code with Robin for the On-site Sewage Inspector Certification Exam. These slowed and paused re-inspections, as we were unable to write our exam at the beginning of the summer. There were some inspections that were done without proper certification. The main challenge that was encountered in our attempt to close files was the lack of response from property owners. Without the co-operation of each property owner we are unable to close the violations rectified and therefore files remain open. Despite this, a good number of inspections were conducted and the program was adjusted accordingly.

This year was the fourth year of the Water Quality Program and was run along side of the Septic Re-Inspection program. Although it is good for our lakes, it caused for there to be less time to complete inspections due to lost 2 months of the program. Along with these challenges there were many benefits. We learned a lot studying and writing the exam, it allowed us as inspectors to know exactly what is required under the Ontario Building Code. This gained knowledge allowed us to properly inspect and assess septic systems with greater depth.

Improvements

This year we continued to document in a way that was easier to access and understand. Every morning all files were documented into the Seguin re-inspection database, with a total of 130 files entered. This way it was easier to keep track of all property information, permits issued and any deficiencies noted on site. Our Ontario Building Code, On-site Sewage Inspector Certification Exam was also booked as soon as we got here so we were able to study and write the exam as soon as possible.

Another improvement made was the students from last year opened existing files in an effort to make the program run smoother, 62 files were opened corresponding to Baby Lake, Storm Lake and First Lake. These three lakes are over-threshold with respects to Phosphorus as noted in the 2009 Water Quality Report submitted to the Township of Seguin by AECOM. This decreased the amount of time needed to get permits from the Township office in Seguin and from the Conservation Authority office in North Bay.

An improvement that could have been made is the documentation of the lakes that were done in previous years. Using a map of the township and crossing off each lake, the year that it had been completed and if the lake is over-threshold with respects to Phosphorus. Setting it up like this would make it easier to choose the lake to re-inspect and it would allow for the water quality and septic re-inspection portions of the program to be integrated together indicating any possible trends between malfunctioning sewage systems and increasing phosphorus levels. Secondly, once a lake is chosen to be re-inspected a map of all properties located around the lake may be useful in crossing off all properties inspected and indicating locations that may have deficiencies with regards to the Ontario Building Code.

Thanks

Like most years, the program would not be successful without the help of many individuals. The Re-Inspections Program is a team effort that involves the work of many different individuals. We would like to thank Kelly Krist, Chris Madej, and Chris Mahon from Seguin Township. Through out the summer they helped us co-ordinate vehicles, provided us with Township maps, and assisted us with locating permits for the new lakes we re-inspected this year.

We would also like to thank Robin Allen, Jen Albert and Rick Brier from the North Bay-Mattawa conservation Authority office in Parry Sound. Providing a comfortable environment to learn and understand every aspect of the job. Without their support the Re-inspection program would not be possible and we appreciate them taking time from their work to help us with any problems or questions that may have arisen. As well we would like to thank Madeline Poitras from the North Bay office. Madeline

graciously took time to find the permits that we were unable to locate at the Township of Seguin office.

Conclusion

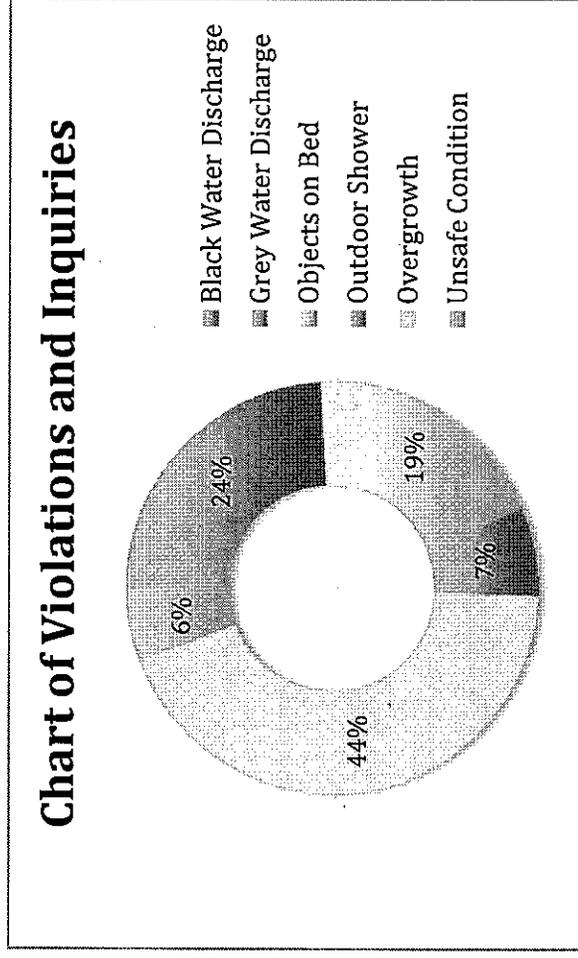
Looking back on the summer, the inspectors feel very satisfied with what has been done. We were able to close many files that have been left open for a couple of years, ensuring that the quality of the lakes in the Township of Seguin are preserved for future generations to come. Even though some problems arose during the job, we were able to solve them with the help of many people from Seguin Township and the North Bay Mattawa Conservation Authority. The experience and knowledge we gain from the program will help us greatly in the future and we thank everyone again for their support.

grey water discharge, structures and objects on leaching bed, illegal forms of outdoors showers, septic bed overgrowth and any unsafe condition of the septic system. From the previously visited properties and the newly inspected properties that were done this year, a total of 87 violations were found. Of these properties that possessed one or more of these violations, they were notified by a letter or a phone call to highlight the violation that existed on their property and what kind of remedial action can be done in order to resolve the discrepancy.

Table 3: Illustrates total amount of each violation that was found through site inspections.

Number of Property Violations and Inquiries	
Black Water Discharge	0
Grey Water Discharge	21
Objects on Bed	17
Outdoor Shower	6
Overgrowth	38
Unsafe Condition	5
Total	87

Figure 1: Chart displaying violation percentages.



4.3 Results from Newly Visited Properties

Baby Lake:

On Baby Lake, 9 properties were inspected and all of the properties files were closed for being maintained and clear of any violations.

First Lake:

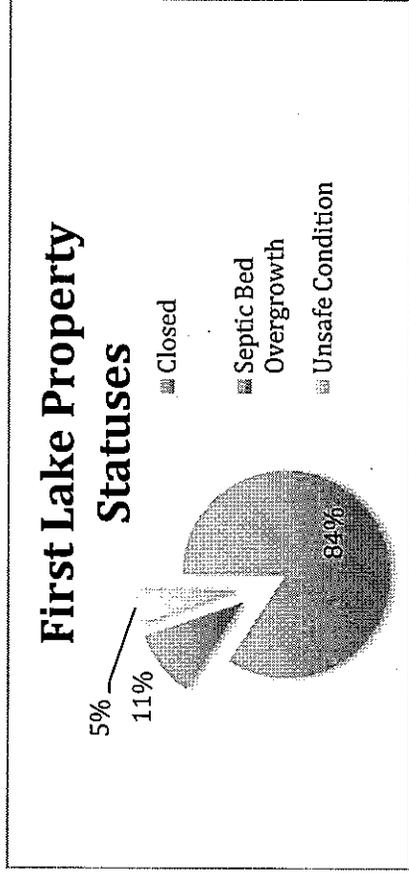
On First Lake, 19 properties were inspected. Of the 19 properties, 16 were closed leaving 3 remaining open. From the open properties, 2 properties had a large degree of septic bed overgrowth, and the 1 property that exhibited an unsafe condition had visible distribution pipes

from a leaching bed that were not fully buried and the system was still in use. Statistics on the type of deficiencies and property status are as follows:

Table 4: First Lake's inspection findings percentages.

Property Status's	Percentage
Closed	84.2%
Septic Bed Overgrowth	10.5%
Unsafe Condition	5.3%

Figure 2: First Lake's status chart.



Lake Joseph:

A total of 9 properties were inspected on Lake Joseph. From this total, 5 of the 9 properties files were closed for being maintained and clear of any violations. The remaining 4 files included 3 incidents of vegetation overgrowth on the leaching bed. The final open property we were unable to find any indication of the whereabouts of the leaching bed location.

Table 5: Lake Joseph's inspection findings percentages.

Property Status's	Percentage
Closed	55.6%
Grey Water Discharge	33.3%
Questionable Bed Location	11.1%

Figure 3: Lake Joseph's status chart.



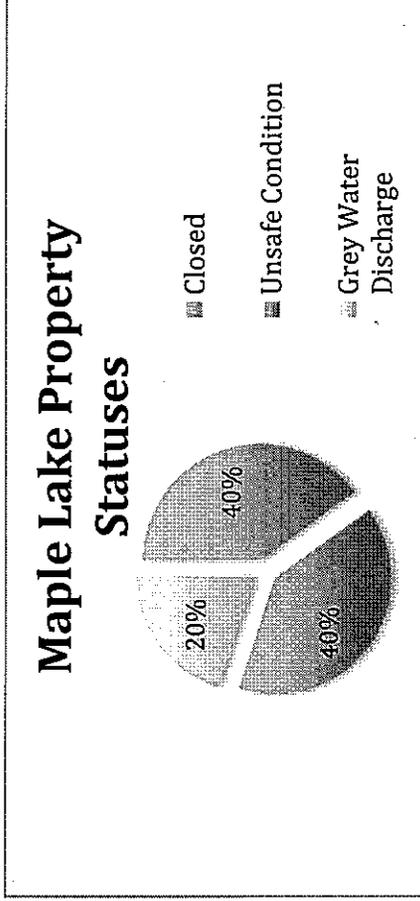
Maple Lake:

On Maple Lake, 5 properties were inspected. Of the 5 properties, 2 were closed, leaving 3 that remained open. 1 of the 3 open files included a property with illegal grey water discharge coming from the kitchen sink and outputting directly onto the ground beneath the dwelling. The other 2 properties were considered to be in unsafe condition because one property had class 1 privies that were not structurally strong and did not meet Ontario’s building code requirements. These privies are to be removed and filled. The last unsafe, open file was also made into an occurrence file, which will go into even further investigation. This property had a visible, aged, steel tank protruding from the ground along with suspicious, visible pipes for possible discharge of grey water and bodily waste.

Table 6: Maple Lake’s inspection findings percentages.

Property Status’s	Percentage
Closed	40%
Grey Water Discharge	20%
Unsafe Condition	40%

Figure 4: Maple Lake’s status chart.



McDonald Lake:

On McDonald Lake, only 2 properties were inspected that bordered this water body. Of the two files, both could be closed, but one of the properties possessed a total daily design sanitary sewage flow greater than 10 000 L/day as it was a trailer park. The Ministry of the Environment regulates all properties that have a design flow of 10 000 L/day or greater.

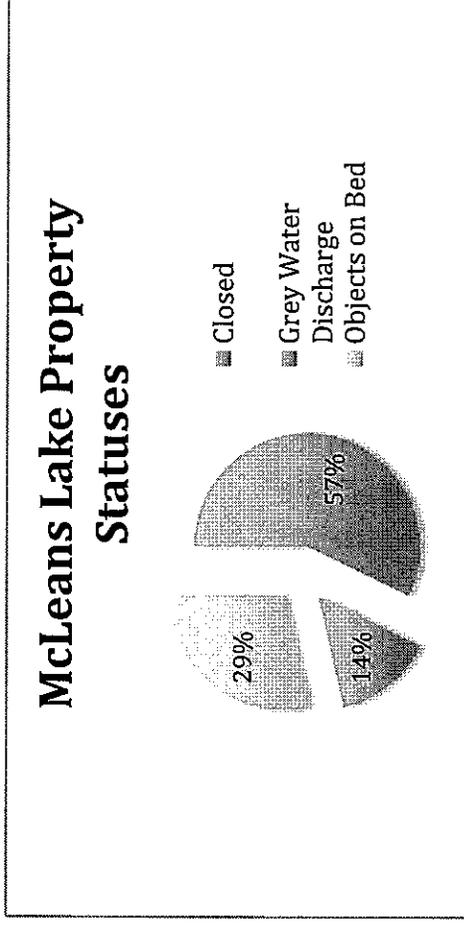
McLeans Lake:

On McLeans Lake, 7 properties were inspected. Of the 7 properties, 4 were closed, leaving 3 still open. Two of the open property files had objects like a fire pit or large brush pile located on the septic bed and the last property in violation had an illegal grey water discharge from kitchen fixture units directly onto land.

Table 7: McLeans Lake's inspection findings percentages.

Property Status's	Percentage
Closed	57%
Grey Water Discharge	14%
Objects on Bed	29%

Figure 5: McLeans Lake's status chart.



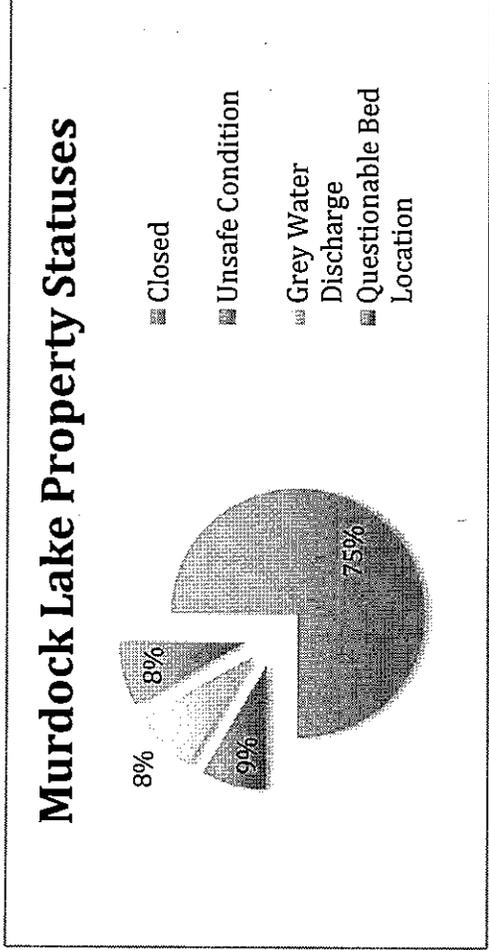
Murdock Lake:

On Murdock Lake, 12 properties were inspected. 9 properties were closed, and 3 were left open for follow-ups. The 3 open files consisted of violations and inquiries of leaching bed location, unsafe condition, and grey water discharge. The property that had a sewage system that was seen to be in unsafe condition possessed a class 1 privy with rotting framing and nearing collapsing. The incidence of grey water discharge came from an outdoor shower that did not have a proper catchment tray to direct the discharging water to a proper disposal.

Table 8: Murdock Lake's inspection findings percentages.

Property Status's	Percentage
Closed	75%
Grey Water Discharge	8.33%
Questionable Bed Location	8.33%
Unsafe Condition	8.33%

Figure 6: Murdock Lake's status chart.



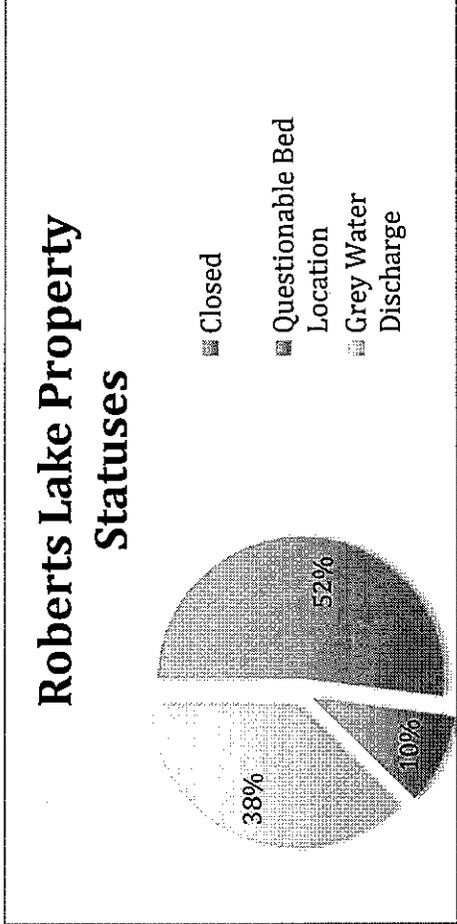
Roberts Lake:

A total of 5 inspections were done on Roberts Lake, and only 2 of the 5 files were closed. This left 3 open files, which consisted of 2 cases of illegal grey water discharge and 1 unsafe condition. The 2 grey water discharge incidents came from an outdoor shower without a proper disposal of discharged water and an uncapped, kitchen plumbing pipes that discharged directly to the open ground. The unsafe condition comes from a half-buried, steel septic tank with a large crack and hole on the top of it. The owner was immediately contacted and is now in the process of replacement.

Table 9: Roberts Lake inspection findings percentages.

Property Status's	Percentage
Closed	40%
Grey Water Discharge	40%
Unsafe Condition	20%

Figure 7: Roberts Lake's status chart.



Storm Lake:

On Storm Lake, 9 properties were re-inspected and all of the properties files were closed for being maintained and clear of any violations. Only one property on Storm Lake used a class 4 septic tank and leaching bed, all of the other dwellings relied on their class 1 privy for human waste only. Privy violations did exist at first on Storm Lake for not meeting the requirements of Ontario's Building Code. Once the owners were notified action was taken to resolve all issues found.

Windfall Lake:

On Windfall Lake, 1 property was inspected and this file was closed for being maintained and clear of any violations for its recently installed class 4 septic tank and filter bed.

5 Conclusions

Through the processes of monitoring dissolved oxygen levels, secchi Disk depth measurements, sample collections on the lakes and septic system inspections on waterfront properties, it can be concluded that the overall condition of the lakes healthiness is at a stable level of concentration for maintaining life of all organisms and animals. From the results of the dissolved oxygen levels across the 42 lakes it was found that they all carried out the same general trends and increases that have regions of optimal concentrations for living. Also examining waterfront properties septic systems allowed us to hunt for any system that could have not been functioning properly to filter the effluent of the system and prevent any illegal direct discharges to the lake. When these violations were found we communicated with property owners immediately to take remedial action and ordered the systems to be forthwith until legal replacement fix. Through the action cutting off direct discharge, it is saving the overall water quality of the lakes.

6 Recommendations

This is the forth year the Water Quality program has been running. In past years and this year the students have taken a lot of time to determine access locations for lakes without boat launches. We found it was faster and more efficient to go out to the lakes and ask owners personally if we could use their property to put our canoe in. This saved time in the office calling owners and waiting for a reply. At the beginning of this summer, the Secchi Disk had no weights on it so when it was lowered into the water it would not sink properly and would be steered away with the lake currents. This prolonged testing and made the readings less accurate. It is recommended for future testing to use a weighted Secchi disc that falls straight down into the lake. To improve the accuracy of the phosphorous concentration within the lake, multiple water samples should be taken at various deep spots instead of just one sample location at the deepest point of the lake. Working as Septic Re-Inspector a future recommendation to make inspections initiate more efficiently would be to have all permits that exists in paper record be inputted into

the already existing database. Having an electronic database of all properties that have an installed septic system would reduce the time taken retrieving property permits from multiple office locations dramatically.

7 Acknowledgements

We would like to thank many of the people involved in the program this year. The co-operation of Seguin Township residents in allowing us to access lakes through their properties was crucial in completing our water monitoring this summer. We would also like to thank all the staff at Seguin who welcomed us to the work place and making it an enjoyable summer, and for taking the time to train us new students.

Like most years, the program would not be successful without the help of many individuals. The Re-Inspections Program was a team effort that involves the work of many different individuals. We would like to thank Kelly Krist, Chris Madej, and Chris Mahon from Seguin Township. Through out the summer they helped us co-ordinate vehicles, provided us with Township maps, teaching us how to use GIS software, assisting us with locating permits for the new lakes we re-inspected this year, and being there for whenever questions could be answered.

We would also like to thank Robin Allen, Jen Albert and Rick Brier from the North Bay-Mattawa conservation Authority office in Parry Sound. Providing a comfortable environment to learn and understand every aspect of the job. Without their support the Re-inspection program would not be possible and we appreciate them taking time from their work to help us with any problems or questions that may have arisen. As well we would like to thank Madeline Poitras from the North Bay office. Madeline graciously took time to find the old permits that were not located at the Parry Sound office.

8 Bibliography / Reference List

Density Stratification." *Water on the Web*". 31 Jan. 2011. Retrieved 12 Sept. 2011 from http://www.waterontheweb.org/under/lakeecology/05_stratification.html.

9 Appendix