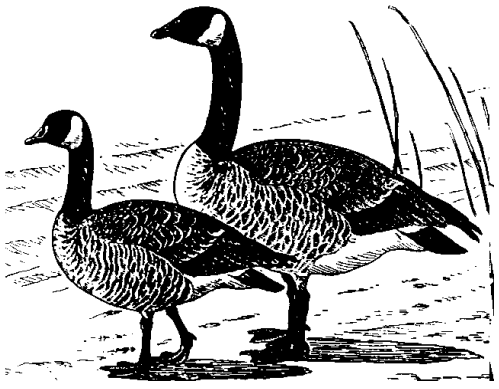
Kawartha Lake Stewards Association

Lake Water Quality
2001 Report

DON'T FEED
THE GEESE!



February, 2002

Dedicated to the memory of

Gus McIntosh

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MESSAGE FROM THE CHAIR

Enclosed is the first annual report on The Kawartha Lake Stewards Association (K.L.S.A.) water quality testing program. This testing program was carried out within the watershed of the Kawartha Lakes section of the Trent-Severn Waterway (T.S.W.). It has been a very exciting and rewarding year for all those involved.

Background

Like most "grass roots" organizations, the K.L.S.A. started with a group of people having a shared vision. We wanted to know more about the water quality on our T.S.W. connected lakes, particularly *E.coli* (remembering Walkerton) and phosphorus levels.

It became readily apparent that there was no one organization (government or private) that was testing our lake water in multiple locations for *E.coli* and phosphorus. We found that local Conservation Authorities did some water testing but did not always publish the results. We also found that local Health Departments tested for *E.coli* at public beaches and that the Ontario Ministry of the Environment (M.O.E.) carried out the Ontario-wide, "Lake Partner", phosphorus and water quality program, using volunteers to collect the water samples.

We decided to form a volunteer-driven non-profit organization that represented local lake associations and property owners in the Kawartha Lakes area. The organization would co-ordinate testing for lake water quality in the area. Appendix A is a listing of all test results and Appendix "B" describes the "mission" of the K.L.S.A.

A few of us originally did some water quality testing in several lakes in the summer of 2000 and were ready to go with a broader program for 2001. Many others had, for a number of years, been local lake stewards involved in the MOE Lake Partner program. This report is the result of our activities during the summer of 2001.

Highlights of 2001

A number of notable achievements for our first full year include:

- The K.L.S.A carried out water quality testing, at 115 sites on 11 lakes, from Pigeon Lake to Katchewanooka. Volunteers who were mostly from 15 "Cottage" Associations on the lakes took all samples. Appendix C is a listing of K.L.S.A. members who did the water sampling. We were particularly pleased to have the involvement of the Curve Lake First Nation on Chemong Lake.

- We established a partnership with the Kawartha Fisheries Association (K.F.A.) to extend our program south to Rice Lake and up the T.S.W. into Balsam, Cameron and Sturgeon Lakes.

- The Trent-Severn Waterway contributed generously to our program, and several local municipalities, businesses, our Cottage Associations and Curve Lake First Nation donated matching funds. The funds were raised mainly to pay Lakefield Research, an accredited laboratory, to analyze and report on *E.coli* in our water samples. Please note we do have a year end net balance but need to raise considerable money to carry out our program for next year. We look forward to having a favorable response to this report from our generous donors and their continued support in upcoming years. Appendix "D" is a listing of our donors and Appendix "E" contains our Treasurer's Report and Accountant's Financial Review.

To ensure our mission was clear and supported, to provide continuity into the future and to have defined leadership we established a Constitution, elected a Board of Directors, appointed officers, and incorporated as an Ontario non-profit organization. To protect our volunteers and officers, K.L.S.A. obtained liability insurance. A copy of our constitution is available from the Secretary/Treasurer.

Future Years Program

A great deal was achieved in 2001, our first year, but what about next year and the future? Next year we will extend our test site coverage in some larger lakes not completely covered in 2001, with the assistance of K.F.A. and local associations. The "hot spots" noted in our 2001 bacteria testing report will be carefully monitored and if *E.coli* is still present we will make further attempts to pinpoint the sources of contamination.

We intend to publicize our report, or parts of it, to ensure T.S.W. residents are aware of the potential *E.coli* problems associated with Canada geese and other waterfowl. We will continue to monitor and report on phosphorus levels through our involvement in The Lake Partner Program. In the future, K.L.S.A. may take on other areas of research related to water quality in the T.S.W.

Thank You

To our many volunteers, donors, our partner K.F.A. and to those such as the Trent-Severn Waterway, the staff of the M.N.R., M.O.E., Peterborough County-City Health Unit, Sir Sandford Fleming College Cartography Department, City of Peterborough G.I.S. Cartography Division and Lakefield Research who helped us by participating in our workshops and in many other ways, I want to extend my sincere thanks. Extra thanks to George Gillespie, of McColl Turner Chartered Accountants, for reviewing our financial records and to Tom Cathcart of the Peterborough County-City Health Unit, for reviewing the bacteria results and draft report.

A special thank you goes to Pat Moffat who convinced me we needed to start a coordinated water testing program, worked with me to form the K.L.S.A., spearheaded fundraising, kept the media informed of our activities and set up, coordinated and reported on the Bacteria Program.

To obtain additional copies of our report, or to find out more about the K.L.S.A., please feel free to contact any member of the Board, or myself.

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SUMMARY

The major conclusions of the Kawartha Lake Stewards Association's (K.L.S.A.) first year of water testing are:

- Most areas of the Trent-Severn Waterway/Kawartha Lakes that the K.L.S.A. sampled for *E.coli* bacteria in its 2001 testing program proved to be very clean.
- There were several sites with bacteria counts above Ontario's "safe swimming level"; in many cases, the presence of flocks of Canada geese and other waterfowl appeared to be the source of contamination.
- Phosphorus levels are reaching the borderline between "good" and "poor" recreational water quality as defined by the Provincial Water Quality Objectives. This is most likely due to increased human activity in the area.

115 sites from Pigeon Lake to Katchewanooka were sampled for bacteria six times during the summer, and 18 spots were sampled for phosphorus every three weeks. Representatives from 15 cottagers' and residents' associations, Curve Lake First Nation, and individuals from lakes without associations, are members of K.L.S.A. Our partner, Kawartha Fisheries Association (K.F.A.), extended the program above Pigeon and south of Katchewanooka.

Although only 2.3% of all sites tested were unsafe for swimming, showing more than Ontario's "safe swimming" limit of 100 *E.coli*/100 millilitres of lake water, those few sites were cause for serious concern. One, in Clear Lake, was adjacent to a construction site where a septic system was being dug up. Another, in a quiet bay in Lower Buckhorn with a stream running into it, and many family cottages, prompted local initiatives in attempting to determine the causes of the pollution: perhaps leaky septic systems, an upstream beaver dam, or a large flock of Canada geese. The highest bacteria readings were at the water sports beach at Lakefield College School in August, when a summer camp was in progress. K.L.S.A. volunteers and school officials judged large congregations waterfowl, mainly Canada geese, to be causing the contamination. The school posted the beach, continued their own lake water testing after Labour Day, and changed some policies: children are no longer allowed to feed waterfowl at the beach area, and picnics and barbeques there have been curtailed.

Recommendations arising from the conclusions are:

- Large numbers of waterfowl should be kept away from swimming areas.
- Further phosphorus additions to the lakes should be prevented. (Excess phosphorus causes murky water and increased growth of algae and water weeds.)
- Keeping shorelines natural is one effective (and cost effective) way of meeting both the above recommendations. Other "best lake management practices" need to be implemented to prevent further deterioration.

Next year, depending upon funding, K.L.S.A. aims to follow up sites that were of concern this first year, get more local associations involved in water testing, and increase the number of bacteria sampling sites, especially in Sandy Lake and in the larger lakes.

BACTERIA TESTING

"Important work has been done here. You
have brought to our attention a real hazard, which
has led us to change a number of our
procedures, and we appreciate it."

David Hadden, Headmaster, Lakefield College

The Kawartha Lake Stewards Association (K.L.S.A.) tested 115 sites for *E.coli* bacteria from Pigeon Lake down to Katchewanooka six times during the summer, from the July 1st weekend until Labour Day. The purpose of this first year of testing was twofold: to see how safe the lake water was for swimming at these various locations throughout the Trent-Severn Waterway, and to provide baseline data for ongoing monitoring in future years. It also became evident to us during the summer that, in some lakes, there was a drinking water issue associated with our program. Although raw lake water is never considered safe for human consumption, when cottagers draw any of their household water from the lake, it is important to know if there is bacterial contamination in the source. That is because drinking water filters can break down or become less efficient, and children can also swallow water in the bath or shower.

The results of the bacteria testing surprised us. Although most lakes tested very low in *E.coli*, some had shifting areas of concern, and a few lakes had persistent hot spots with *E.coli* levels greater than Ontario's safe swimming levels.

Who Participated

Eighteen K.L.S.A. volunteers from different parts of the following lakes led the water sampling program: Pigeon Lake, Buckhorn, Lower Buckhorn, Sandy Lake, Big Bald Lake, Lovesick, Chemong, Upper Stoney, Lower Stony, Clear Lake, and Katchewanooka. Most volunteers represented local associations of cottagers and residents. Curve Lake First Nation was a K.L.S.A. member group, sampling sites in upper Chemong and part of Buckhorn. In addition, we partnered with the Kawartha Fisheries Association (K.F.A.), who tested 11 more sites in these lakes, in areas where we did not yet have volunteers. The K.F.A. also sampled for *E.coli* at 34 sites in other lakes outside our primary area,

but which are part of the overall Trent-Severn watershed: Balsam, Cameron, Sturgeon, Rice and Scugog.

What We Did

Volunteers in both K.L.S.A. and K.F.A. used exactly the same protocol: we took samples on the same weekends, followed accepted sampling techniques, and had the same accredited laboratory, Lakefield Research, analyze the samples. A workshop in late April, attended by K.L.S.A. volunteers and K.F.A. executive director Peter Lindsay, trained participants in proper sampling techniques for bacteria and also phosphorus. (See phosphorus section.)

We chose to test only for *E.coli* rather than *E.coli* and total coliform, which some of us had done in the past, because *E.coli* is increasingly becoming recognized as the most reliable indicator of contamination of water by animal feces and human sewage. Whereas coliforms of various types are present in many places, such as in soil, *E.coli* bacteria grow only in the intestines of vertebrates (humans and other mammals, birds, reptiles, amphibians, fish).

A word about *E.coli*: Although the tragedy at Walkerton gave *E.coli* a very bad name, there are actually a few hundred different varieties of these bacteria. The culprit at Walkerton was one of only a very few that is dangerous in itself. The importance of *E.coli* in our water testing program was as an indicator only. That is, if *E.coli* bacteria are present in high numbers in water, it's quite likely that other, more serious bugs are also present, such as Giardia, Salmonella, or many other organisms that can cause intestinal upsets, skin rashes, ear infections, etc.

Some volunteer water testing programs use do-it-yourself kits to detect total coliform and *E.coli*, while others use accredited laboratories for the analyses. K.L.S.A. chose to use the accredited lab at Lakefield Research for all our bacteria tests this year. Some of us had had experience with these kits in the past, and felt that for such a large program as ours, we should try to eliminate as much as possible variations in the data due to human error.

We all collected lake water samples on the same weekends, six times throughout the swimming season: July 1, July 22, July 29, August 5, August 12, and September 2. The reason that there are gaps of one or two weekends between some of the tests is that our water sampling schedule had to also accommodate the phosphorus program

(See page 22), in which water samples were collected every three weeks. To avoid volunteer burnout, we combined bacteria and phosphorus sampling in one trip as often as possible.

Each volunteer, usually in consultation with members of his or her local lake stewardship committee, chose a number of sites in his lake or area of the lake to test for bacteria. We targeted sites which we felt were most likely to have high counts: quiet bays with many cottages, marinas, spots where houseboats park overnight or popular camping areas, resort beaches (with the owners' knowledge and often participation), inflows of streams, and so on. Some members tested only three or four sites; others tested twelve or more. The average number of sites tested by each group was six. These chosen sites were used for all six test dates throughout the summer.

We asked Lakefield Research to phone or email local volunteers whenever a site had a reading of 20 *E.coli* per 100 millilitres or higher. Ontario's "safe swimming" limit is 100 *E.coli*/100 ml. That is, public beaches, which are monitored by local health authorities, are posted when bacteria reach that level. Some of our member groups had at least one year of testing experience before the K.L.S.A. was formed, and those volunteers had all experienced very low *E.coli* levels in their lakes, with numbers rarely even approaching 20 *E.coli*/100 ml. We felt that 20 would be a good threshold for our first year: it could signal that a problem might be developing at a site.

When volunteers were phoned and told that a site had tested above 20 *E.coli*/100 ml, they usually returned to the site right away and took three to five more samples in the same general area. We would move in closer to shore in taking the samples, for example, or perhaps move upstream a bit if the site was at a stream inflow, or take several samples across the beach if the site was a resort.

If the numbers of *E.coli* were higher upon retesting, especially if they approached or exceeded the safe swimming limit, our policy was for volunteers to inform adjacent landowners of the results. We wanted to make them aware of the problem for their own swimming safety, and to seek their cooperation in trying to determine where the bacteria were coming from.

What We Found

Before reading the interpretation of our results in the next subsection ("What the Results Mean"), please take a close look at the raw data in Tables 1, 2, and 3 in Appendix A. Table 1 shows all the initial *E.coli* test results for K.L.S.A.'s eleven lakes. High bacteria levels that were retested are indicated in **bold**, and results of those retests are given in Table 2.

Table 3 tabulates the results from our partner, Kawartha Fisheries Association. The K.F.A. did not retest sites that had more than 20 *E.coli*/100 ml., but relied on the next set of scheduled tests to indicate whether or not a problem continued.

What the Results Mean

By far the majority of sites K.L.S.A. tested were very clean. As can be seen in Table 1, many of them showed zero *E.coli* on more than one occasion.

Out of 115 sites, most of which were tested 6 times during the season, we found bacteria levels above 20 *E.coli*/100 ml only 59 times. In other words, only 8.6% of our total 690 initial tests were greater than 20. On our initial tests, eight, or 1.2% of the total sites, tested above Ontario's safe swimming limit of 100 *E.coli*/100 ml. Out of 102 retest sites –retested because initial readings were higher than 20 *E.coli*/100 ml.– 10 tested above the safe swimming limit. That means that of the total initial plus retest sites (690 + 102), 18 sites, or 2.3% were unsafe for swimming.

That may not seem like a lot out of the total number of Kawartha test sites, but if a reading of 130 or 1500 *E.coli*/100 ml occurs off the end of your dock, or at your resort's beach, it will seem very serious indeed! Let us examine some of the lakes, or areas of the larger lakes, more closely, looking for patterns of results and causes of bacterial contamination.

Many of our K.L.S.A. lakes had no readings over 100 *E.coli*/100 ml all summer. These include Big Bald Lake, Buckhorn, Lovesick, most of Pigeon, and both Upper and Lower Stony. Keep in mind, however, that K.L.S.A. does not have total coverage of all lakes downstream of Pigeon. Coverage is only partial in Chemong, for example. Curve Lake First Nation tested around its peninsula, and found no readings above 26. However, our partner K.F.A. had one sample test at 842 in the southern portion of Chemong.

Even with K.F.A.'s participation, we do not yet have full coverage of Chemong, Buckhorn, or Pigeon, all very large lakes.

Some lakes had intermittent or shifting areas of concern. That is, one week site 2 might test out higher than 20, even higher than 100, yet the next week, or upon retesting a couple of days later, the site would turn out to be very low in bacteria. Or on one week site 2 would be higher than 20, or 100, and the next week it would be very low, but site 5 would be higher; at the next test, site 1 would be high, and both sites 2 and 5 would still be low. Examples of this pattern of shifting areas of concern can be seen in Clear Lake (Birchcliff), Lower Buckhorn, and Katchewanooka (sites 1, 5, and 6). Volunteers at these lakes suggest that geese or other waterfowl may be responsible for these shifting high readings, as there were simply no indications of other causes, and flocks of geese were observed in the area. Sometimes flocks of up to 60 to 80 Canada geese are seen in various parts of our Kawartha Lakes, flying and paddling around to different locations. Waterfowl have *E.coli* and many other organisms in their feces.

Some higher readings were attributable to specific situations nearby. The reading of 36 at site 6 in Lovesick on August 6, for example, was strongly suspected to be due to a septic system overflow that was known to have occurred at that site a couple of days prior to the sampling, so retesting was not even done. (Yet the reading of 60 at site 9 on the same day was inexplicable, and disappeared on retesting.)

Another example of a specific and very probable cause is site 2 in Clear Lake (West side). The site began having readings of greater than 20 on July 22, and retested far above the safe swimming level, at 308 and 202, on July 25, before calming down to normal range by mid August. The K.L.S.A. volunteer in the area reported that the sampling site was directly adjacent to a construction site, where an old cottage and septic system were being demolished and dug up. Presumably material from the septic system was being washed into the lake.

K.F.A. executive director Peter Lindsay summarized his group's test results at K.L.S.A.'s final 2001 meeting on September 29th. Of the 47 sites tested in eight lakes, most were quite clean, with only a few problems showing up. Scugog had three or four areas of concern, all near areas of current urban development. Of the other K.F.A. lakes, Rice was fairly stable, with no readings above 100, but not many sites had very low bacteria levels either. Pigeon, Cameron, and Balsam all had consistently low *E.coli* readings. Sturgeon and Chemong both had one spike, with *E.coli* at 1310 and 842

respectively, but both then went back down to normal. Buckhorn, however, had one site, Site 1, that was consistently higher than 20. It is located near the inflow from Sandy Lake.

Since K.L.S.A. results from Sandy Lake also had two sites that tested above the safe swimming level on at least one sampling date, we should watch this lake closely next year. At present, only one local Association on Sandy Lake is involved in the K.L.S.A. program – at the far end of the lake from the culvert entering into Buckhorn – and the volunteer believes that the high readings were probably due to geese. Next year we should attempt to increase coverage on Sandy Lake, to involve more of the Associations, and increase the number of test sites.

Two Case Stories

Site #4 in **Lower Buckhorn** had noticeably high readings from the very beginning of our sampling, coming in with 52 *E.coli*/100 ml on the first test on the July 1 weekend. Site 4 is a quiet, fairly shallow bay with a steam running into it, and many cottages on its shore. Two out of five retests on July 13 had readings around the safe swimming limit: 99 and 128 *E.coli*/100 ml. The K.L.S.A. volunteer informed a local cottager of the readings, and since there are several families with children cottaging in the bay, people became very concerned. Throughout the summer, volunteers from the area watched the site closely, taking many tests to try to trace the source of contamination. Volunteers even canoed upstream taking samples for retesting.

Throughout the summer, the bacteria levels in the bay were high intermittently (See Table 2). While average readings were in the 20s, occasionally a test would spike to 80 or 118. A single cause of the contamination was not discovered, despite sincere efforts on the part of the local cottagers. Possible causes discussed were: a beaver dam upstream; a flock of 50 to 60 Canada geese inhabiting the bay between April and July; hunters skinning and eviscerating animals upstream; old septic systems at some of the cottages; and even an upstream resident dumping pails of sewage in the stream.

It is very possible that more than one cause was responsible for the intermittent pollution in this bay. Next year, volunteers will continue their efforts to pinpoint the sources of the contamination. In the meantime, this summer they instructed their children to keep their mouths closed when swimming and playing in the water. The K.L.S.A. program stimulated a strong sense of community involvement and responsibility in this part of Lower Buckhorn.

Of all the K.L.S.A. lakes, **Katchewanooka** had the greatest variety of conditions, and one of its sites had by far the highest *E.coli* readings in our program this first year. Katchewanooka is the last lake in this section of the T.S.W., receiving the flow from all the lakes upstream to Balsam, and emptying into the Otonabee River. Lakefield is situated on the shore of Katchewanooka, and the Otonabee River flows through Peterborough.

Katchewanooka showed the pattern of shifting areas of concern, with first site 5, and then sites 1 and 6 having elevated readings. Upon retesting, these sites would then revert to low readings. The lake also had severe algal blooms beginning quite early in the spring. Some local cottagers were concerned about the water conditions all season.

Our K.L.S.A. volunteer in Katchewanooka was unable to find any correlation between the heavy algal growth and high *E.coli* readings, which was somewhat reassuring to cottagers. In other words, even though some residents had to manually rake algae out of their swimming areas, that did not mean that the water also had high bacteria levels.

The site on Katchewanooka that concerns us for bacteria is site #4, which is the beach and water sport area at Lakefield College School. After three very low *E.coli* readings in July (0, 0, and 2), the water sample taken off the beach suddenly went up to 84, and the following week, August 13, it shot up to an astounding 1490. (See Table 1.) The K.L.S.A. volunteer contacted the school immediately, and notified the plant manager of the high readings. A summer camp was underway at the campus at that time, using the area for water sports like canoeing and wind surfing. The plant manager told the camp personnel about the high *E.coli* readings. Upon retesting on August 17, the readings at various places along the beach and off the swimming docks were 48, 60, 40, 5800 and 7000. (See Table 2.) The beach was posted at this point, prohibiting water contact sports.

By Labour Day, the bacteria level at the site was down to only 4 *E.coli* per100 ml. The school continued taking its own samples and delivering them to Lakefield Research after our program ended. They continued to have low readings: 4 on Sept. 7 and zero on Sept. 11. Fortunately, camp personnel said that despite the bacterial contamination, there did not appear to be any more illnesses among the children this year compared to previous years.

What caused such terribly high readings? In a meeting with David Hadden, headmaster of Lakefield College, and Rob LaPlante, director of facilities and environmental services, a septic system leak was virtually ruled out, since there is no septic system at the site: the school has been hooked up to Lakefield's sewage service for some time. Our volunteer in Katchewanooka, Peter Fischer, reported that when he collected the second set of samples for the retestings, which produced the highest readings, he took them from off the docks, rather than from his boat farther out in the water. The docks, he said, were extremely slippery with waterfowl feces. Mr. Hadden and Mr. LaPlante reported that children had been feeding gulls and geese at the beach, and that there were barbeques and picnics in the area, which also would have attracted the birds.

That has changed now, since the administration and the camp personnel understand that there has been a serious health hazard at the beach. "As a result of your volunteer efforts, you have made us aware of the impact of feeding birds at the waterfront," Mr. Hadden said. "We would like to think that we reacted in a responsible manner. As a result of this, we have changed a number of our procedures and are going to be monitoring the situation closely in the future." From now on, he continued, children will not be allowed to feed waterfowl, and picnics and barbeques will be curtailed in the beach area. The school will either join K.L.S.A.'s testing program next year or will carry out its own testing program, ensuring that bacteria levels will be closely monitored so that the beach can be posted immediately if there are readings above 100.

The Feathered Culprits

K.L.S.A. volunteers were as surprised as the administration at Lakefield College to discover that waterfowl – ducks, gulls, and mainly Canada geese – may be causing dangerously high bacteria levels in our lakes. This was the major lesson of K.L.S.A.'s first bacteria monitoring program.

Geese and gulls were almost certainly the cause of the extremely high readings at Lakefield College. Geese likely contributed to the intermittent high readings in the quiet bay in Lower Buckhorn, and at a couple of sites in Sandy Lake. Geese were also the probable cause of fairly high readings in North Pigeon Lake. On the whole, from our sampling and K.F.A.'s, Pigeon seems to be quite a clean lake, so readings of 40 and higher stand out. The K.L.S.A. volunteer at North Pigeon could find no other probable cause for two sites with intermittently high readings than large congregations of geese; one site was at a beach, the other near a marsh and resort.

To underscore the point, let's look at Buckhorn Sands, in Buckhorn Lake. There, none of the four test sites had readings above the safe swimming level, but one site, site B, had bacteria levels that were consistently higher than the others, on every test date. They were not enough to be dangerous, ranging from 12 to 52 over the summer, but were enough to stand out quite noticeably from the other sites. (See Table 1.) The volunteer for Buckhorn Sands reported that site B was off the dock of a cottager who was in the habit of feeding geese and ducks.

Waterfowl are not responsible for all of our high bacteria readings. We have seen that septic system overflows, construction sites, perhaps beaver dams, and illegal dumping of animal entrails and sewage also may create bacterial pollution in lake water. But the cause that most often seemed implicated in our testing program this summer was large congregations of waterfowl, especially Canada geese.

What to Do about the Geese?

- **Do not feed geese and other waterfowl**. That encourages them to gather around swimming docks and cottages and to keep coming back for more.

- **Naturalize shorelines**. An expanse of lawn running down to the shore is an invitation to geese to step right up and congregate on your property, eating bugs in your lawn, and even flocking there overnight. When it rains, the excrement will run right into the water off your shore. If you have a lawn, create a buffer zone of at least a meter wide, by planting native shrubs and other plants at the shoreline. If your shoreline is natural, let it be.

- **Trick geese into staying away from your property**. Geese are afraid of snakes, especially when their chicks are young. Some resort owners have placed large, black, **rubber snakes** on docks with success. Our K.L.S.A. volunteer in North Pigeon Lake, the late Gus McIntosh, made a **plywood cutout of a wolf**, painted it a dark colour, and placed it at the edge of a site where he'd found high readings and had observed geese. He reported that the wolf kept the geese away for about six weeks. Geese don't like shiny, rapidly moving objects like **pinwheels** or strips of foil waving in the wind. Place some at your shoreline or on docks and swimming rafts if you have a problem with geese. Since geese can learn, it may be necessary to use two or three of these anti-geese devices in succession to keep the geese away all summer.

By Pat Moffat, Vice Chair
Bacteria Monitoring

PHOSPHORUS TESTING

While bacteria were monitored for *health* reasons, the Kawartha Lake Stewards Association (K.L.S.A.) monitored the chemistry of the lake for *recreational* reasons. We were looking for a rise in phosphorus level, a chemical change that tends to occur with human activity in the watershed or on the shoreline.

Effects of Excess Phosphorus

High phosphorus levels result in a loss of water *clarity,* in the same way that an untended aquarium becomes green and murky. Phosphorus runs off into lakes from fertilizers, erosion and septic system seepage. The immediate effect is an increase in algal growth, turning the lake murky. Over the years, the algae settle into the sediments. These sediments provide a rich 'soil' for weed growth and continually 'belch' phosphorus back into the lake.

Measuring Phosphorus

The Provincial Water Quality Objectives state that phosphorus concentrations should not exceed an average of 20 ppb (parts per billion) during the ice-free period. At levels higher than 20 ppb, algal growth accelerates, potentially creating unsightly and often foul-smelling algal "blooms." Phosphorus levels, then, are used to track lake deterioration.

K.L.S.A. took water samples for phosphorus analysis at 18 locations from Pigeon Lake to Lake Katchewanooka, every three weeks from spring to fall. In contrast to sampling for bacteria, which is done at elbow depth, phosphorus samples are taken from the deepest part of the lakes, with a collection bottle lowered down to the required depth by a heavy object.

The phosphorus samples were then sent to the Ministry of the Environment in Toronto, where they were analyzed at no charge to K.L.S.A. through the Ministry's Lake Partner Program. We are fortunate to have this program in Ontario, which aids the Ministry in their data gathering and benefits local residents and cottagers by providing important information on the health of their lakes.

Measuring Water Clarity

K.L.S.A. also measured lake clarity visually by using a Secchi disk. A Secchi disk is a circle the size of a paint can lid which looks like a pie cut in quarters with alternating black and white pieces. The disk is lowered until it disappears. This is called the Secchi disk depth. A clear lake will have a larger Secchi disk depth than a murky lake.

K.L.S.A. took Secchi disk readings at the same 18 locations, and at the same time as the phosphorus samples. In fact, the Secchi reading determines the depth at which the phosphorus sample will be taken: the phosphorus sample is collected at double the Secchi disk depth.

Results

The year's average phosphorus level at each site varied from 8 ppb to 19 ppb, with most measurements between 13 and 18 ppb. The average phosphorus level of all the lakes was 15 ppb. Because of the phosphorus-rich limestone in the Trent-Severn watershed, we would expect phosphorus levels over 8 ppb, but 15 ppb indicates substantial phosphorus enrichment due to human activity. Some of the phosphorus may be coming from the illegal dumping of "grey water" directly into the lakes rather than being properly discharged to the septic system.

Downstream lakes usually have higher phosphorus levels than upstream lakes, but this trend was not seen in the K.L.S.A. readings. Please refer to Appendix A, Table 4 for detailed results of the phosphorus testing.

Seasonal-average Secchi disk measurements varied between 2.3 m and 5.3 m (7.5 to 17.5 ft.). As expected, clarity decreased when lake phosphorus levels rose. For every increase of 1 ppb phosphorus, water clarity was reduced by 0.3 m (1 foot).

What to Do in the Future

It is important that we do not let our phosphorus levels increase much more on the Kawartha Lakes, for we are nearing the 20 ppb level, which is the border between 'good' recreational water quality and 'poor' recreational water quality. The K.L.S.A. results indicate a need to encourage wise development and use of our shorelines.

These do not have to be high-tech solutions! There are some simple but effective ways to put your lake on a phosphorus "diet":

- Reduce the use of fertilizers on lawns and in gardens, especially near the shore.

- Leave shorelines in their natural state, or naturalize your shoreline by planting dense native vegetation. (Naturalization accomplishes more than one goal – see second bullet on discouraging geese, in the bacteria section.)

- Have septic tanks inspected regularly.

- Use phosphate-free detergents.

by Kathleen Mackenzie, Vice Chair
Phosphorus Monitoring

Appendix A - Tables

Table 1 – K.L.S.A. *E.coli* results, in No. of *E.coli*/100 ml of Lake Water

(Numbers in **bold** indicate there was retesting. Refer to Table 2.)

Date	7/2	7/22	7/29	8/6	8/12	9/3
Big Bald Lake – 1	4	6	40			2
2	0	4	0			2
3	0	2	0			2
4	2	0	2			2
5	4	4	0			30
6	4	22	8			20
7	2	30	4			2
Buckhorn Sands – A	2	4	12	6	2	4
B	12	18	12	32	52	22
C	2	4	0	2	2	2
D	6	10	0	2	2	2
Buckhorn: Sandbirch Estates 1A	2	18	0	12	2	2
1B	0	4	0	0	0	2
1C	0	10	0	16	0	26
Lower Buckhorn – 1	2	8	8	**40**	4	Table 2
2	0	8	2	2	4	2
4	**52**	Table 2	Table 2	4	2	38
5	2	0	0	2	2	2
6	0	10	0	2	2	2
7	0	2	0	2	8	2
8	2	0	0	2	2	2
9	2	2	0	2	**136**	Table 2
10	0	0	0	2	0	0
Clear Lake: Kawartha Park – A	0	1	0	2	0	2
B	8	2	4	0	2	2
C	0	30	4	0	0	4
D	4	2	2	4	0	0
Clear: Birchcliff - 1	10	0	2	2	2	2
2	18	4	2	28	2	2
3	6	0	4	**88**	2	2
4	2	0	4	2	2	4

Date	7/2	7/22	7/29	8/6	8/12	9/3
5	4	132	4	2	2	2
6	2	8	0	2	2	2
Clear: West side - 1	6	18	0	2	0	6
2	2	**24**	**22**	**118**	2	2
3	**32**	12	6	2	4	2
Chemong: Curve Lake - 1	10	2		10	0	
2	0	16		8	0	
3	26	14		2	0	
4	2	14		4	0	
5	2	24		4	0	
Katchewanooka - 1	16	14	**22**	8	4	8
2	0	6	2	6	10	2
3	2	6	14	4	2	2
4	0	0	2	84	**1490**	4
5	**20**	0	6	2	6	2
6	2	0	**28**	12	2	2
Lovesick - 1	4	0	0	0	4	2
2	10	4	8	2	3	2
3	2	2	0	0	2	2
4	6	2	6	0	2	6
5	2	4	0	0	2	2
6	0	8	0	36	2	2
7	0	4	0	0	2	10
8	0	4	6	0	2	2
9	8	4	2	**60**	2	6
10	0	4	12	0	2	2
11	0	0	0	2	2	2
12	0	2	0	0	2	2
13	12	4	0	4	2	2
Pigeon Lake: PLEA - 1	0	3	2	6	6	2
2	8	0	0	2	2	10
3	2	2	0	2	2	8
Pigeon: Alpine Village - 1	0	12	0	8	0	

Date	7/2	7/22	7/29	8/6	8/12	9/3
Pigeon: Sugarbush/Tall Cedars 1	0	0	0	2	0	2
2	0	1	0	34	0	16
3	0	6	0	6	2	2
4	0	2	0	6	2	2
5	0	2	0	2	0	10
Pigeon: Concession 17 - 1	0	12	0	0	0	2
2	0	22	0	0	2	10
3	0	44	2	2	2	6
4	0	0	0	2	2	2
5	0	4	0	0	2	2
North Pigeon Lake - 1	**24**	Table 2	**20**	Table 2	Table 2	10
2	2	28	0	6	0	6
3	4	18	2	18	6	8
4	0	6	4	2	2	2
5	0	14	2	6	2	2
6	2	**110**	Table 2	**40**	**40**	Table 2
7	2	16	6	4	2	4
8	0	6	0	2	2	2
9	0	0	6	12	2	8
10	0	18	2	0	2	10
Sandy Lake - 1	2	78	4	4	10	**160**
2	2	6	0	0	112	**130**
3	0	2	0	2	2	2
4	0	0	2	0	2	2
5	4	16	0	0	2	2
6	4	6	4	14	8	**64**
Stony – A	2	0	2	2	2	
E	0	6	10	6	2	6
F	2	14	16	4	10	2
G		4	0	2	2	
H		Table 2	2	4	16	
I		10	4	4	6	
J	8	Table 2	12	14	16	2

Date	7/2	7/22	7/29	8/6	8/12	9/3
K	4	2	0	4	2	6
L	0	2	4	8	4	2
N		0	2	14	2	2
P	2		6	14	2	2
Upper Stoney - 6	12	10	12		8	2
20	12	2	2		10	18
21	0	0	4		4	14
52	4	4	6		10	14
56	0	2	0		2	2
62	0	2	2		2	2
63A	0	2	0		2	2
65	0	0	2		2	20
70	2	2	0		2	4
78A	0	0	0		2	2
85	0	0	2		2	2
99	0	0	2		0	4

Table 2 – K.L.S.A. Results of Retests, in No. of *E.coli*/100 ml of Lake Water

Lake/area	Site	Date	Initial Result	Retest Date	Sites	Retest Results
Lower Buckhorn	4	7/3	52	7/13	4A	99
					4B	128
					4C	34
					4D	1
					4E	3
				7/23	4A	80
					4B	28
					4C	12
					4D	24
					4E	6
				7/30	4A	16
					4B	32
					4C	16
					4D	22
					4E	52
				8/9	4B	6
					4C	2
					4D	118
					4E	38
	1	8/7	40	9/4	1	2
					1A	28
					1B	4
					1C	6
	9	8/13	136	9/4	9	2
					9A	130
Clear: Birchcliff	3	8/7	88	8/10	3A	26
					3B	20
					3C	10
Clear: West side	3	7/3	32	7/5	3A	0
					3B	0
					3C	0
					3D	0
					3E	0
	2	7/23	24	7/25	2A	308
					2B	202
					2C	66

Lake/area	Site	Date	Initial Result	Retest Date	Sites	Retest Result
Clear: West side (cont'd)					2D	70
					2E	28
	2	7/30	22	8/2	2A	44
					2B	48
					2C	48
					2D	52
					2E	60
	2	8/7	118	8/9	2A	16
					2B	12
					2C	30
					2D	20
					2E	24
Katchewanooka	5	7/3	20	7/5	5A	136
					5B	192
					5C	74
					5D	12
					5E	16
	1	7/30	22	8/1	1A	6
					1B	2
					1C	4
					1D	2
					1E	4
	6	7/30	28	8/1	6A	2
					6B	40
					6C	8
					6D	4
					6E	0
	4	8/13	1490	8/17	4A	48
					4B	60
					4C	40
					4D	7000
					4E	5800
Lovesick	9	8/7	60	8/13	9A	2
					9B	2
					9C	2
North Pigeon Lake	1	7/3	24	7/23	1A	24
					1B	32
					1C	2

Lake/area	Site	Date	Initial Result	Retest Date	Sites	Retest Result
North Pigeon Lake (cont'd)				7/25	1A	28
					1B	44
					1C	26
		7/30	20	8/7	1A	140
					1B	52
				8/10	1A	48
					1B	32
					1C	66
				8/13	1A	46
					1B	20
				9/4	1A	10
					1B	12
	6	7/23	110	7/25	6	38
				7/30	6A	18
					6B	18
		8/7	40	8/10	6A	16
					6B	22
		8/13	40	9/4	6A	10
					6B	16
Sandy Lake	1	9/6	160	9/10	1	70
	2	9/6	130	9/10	2	16
	6	9/6	64	9/10	6	18
Stony *	H	7/16	24	7/23	H1	2
					H2	2
					H3	14
	J	7/16	30	7/23	J1	6
					J2	8
					J3	2

***** Stony (The Association of Stony Lake Cottagers), in order to continue with an established protocol from previous years, had one extra testing date, on July 16. Those results have not been shown in this report, except for the two retestings, which coincided with K.L.S.A.'s test date on July 23.

Table 3 - Kawartha Fisheries Association – No. of *E.coli*/100 ml of Lake Water

Lake	3-Jul-01	24-Jul-01	30-Jul-01	6-Aug-01	13-Aug-01	3-Sep-01
Balsam 1	8	60	6	12	18	2
2	0	0	2	0	4	0
3	0	0	0	8	20	0
4	4	6	2	10	6	6
5	4	18	6	10	12	8
6	0	28	4	6	6	6
7	8	6	4	0	0	6
8	4	0	0	0	0	0
9	0	0	0	0	2	0
Cameron 1	42	0	0	4	8	0
2	122	2	2	4	4	2
3	-	0	2	14	18	0
Sturgeon 1	4	4	2	6	8	2
2	50	10	20	16	1310	4
3	20	0	2	6	42	4
4	0	6	2	6	6	2
5	0	4	4	8	16	12
6	36	2	4	8	20	2
7	12	8	2	2	16	2
8	6	6	2	0	2	2
Pigeon 1	6	6	0	2	2	4
2	12	16	6	18	14	2
3	38	6	2	10	6	6
4	12	32	16	20	34	2
5	0	0	0	4	0	2
Chemong 1	14	8	4	10	36	4
2	2	8	6	8	842	4
3	4	4	4	8	8	4

Site	3-Jul-01	24-Jul-01	30-Jul-01	6-Aug-01	13-Aug-01	3-Sep-01
Buckhorn1	32	42	20	6	80	2
2	32	4	2	6	16	6
3	6	0	0	4	8	0
Rice 1	2	10	4	8	10	8
2	2	20	12	20	24	12
3	4	18	20	24	30	2
4	42	0	2	2	6	2
5	10	46	30	16	18	8
6	0	8	6	12	76	10
Scugog 1	8	0	6	20	26	76
2	2	2	2	8	10	16
3	50	8	18	12	106	82
4	4	4	8	18	202	54
5	54	18	22	20	42	24
6	22	0	2	4	0	2
7	22	0	2	2	8	2
8	216	0	2	4	8	2

Table 4 - Total Phosphorus and Secchi Disk Depths, 2001

Lake	Location	Date	Secchi Depth, m	Total Phosphorus, ppb
"—" means no data for that date				
Big Bald	Mid-lake	29 Apr	4.0	8
		20 May	4.0	12
		17 June	5.0	12
		22 July	3.2	12
		13 Aug	3.5	16
		1 Sep	3.5	16
		22 Sep	3.9	12
Chemong	N side of Causeway	06 Jun	3.1	16
		11 Jun	2.7	16
		18 Jun	3.0	18
		28 Jun	3.1	22
		03 Jul	2.3	16
		10 Jul	2.1	20
		31 Jul	2.7	18
		08 Aug	2.3	38
		29 Aug	2.3	--
		11 Sep	2.5	14
		26 Sep	2.7	16
		16 Oct	2.5	--
		24 Oct	2.6	--
Clear	Main Basin	27 May	4.0	8
		10 Jun	5.3	8
		02 Jul	4.1	12
		30 Jul	4.5	12
		13 Aug	4.6	16
		03 Sep	4.4	16
		09 Sep	4.3	16
		16 Sep	4.6	16
Katchewanooka	SE Douglas Is.	11 Jun	5.3	12
		02 Jul	3.0	14
		23 Jul	4.0	16
		04 Sep	3.5	18

Lake	Location	Date	Secchi Depth, m	Total Phosphorus, ppb
Lovesick	Mid-lake	30 Apr	7.0	12
		23 May	4.0	10
		13 Jun	5.5	16
		03 Jul	5.3	24
		22 Jul	5.5	20
		12 Aug	4.5	26
		03 Sep	5.3	20
		23 Sep	5.5	18
Lower Buckhorn	Heron Island	29 Apr	6.5	10
		21 May	3.0	16
		10 Jun	4.5	20
		03 Jul	3.4	16
		23 Jul	3.0	l6
		29 Jul	3.3	18
		05 Aug	3.1	16
		12 Aug	3.0	28
		04 Sep	2.6	24
		23 Sep	3.4	16
Lower Buckhorn	Trent Canal, Main Channel	16 May	4.0	12
		19 May	4.5	20
		27 May	7.5	10
		09 Jun	4.0	16
		16 Jun	3.0	12
		01 Jul	4.5	18
		07 Jul	4.0	--
		17 Jul	4.0	--
		29 Jul	4.2	--
		31 Jul	4.8	20
		05 Aug	4.0	--
		10 Aug	4.0	--
		17 Aug	3.8	--
Pigeon	Gordon's Rock, S side	23 May	5.5	10
		31 May	5.4	6
		10 Jun	5.5	10
		02 Jul	4.0	12
		22 Jul	4.5	16
		13 Aug	3.5	14
		05 Sep	3.5	20

Lake	Location	Date	Secchi Depth, m	Total Phosphorus, ppb
Pigeon	Middle, Sandy Pt. & Royal Is.	20 May	4.0	12
		02 Jul	2.6	20
		22 Jul	2.6	12
		12 Aug	2.7	24
		03 Sep	2.8	22
Pigeon	Mid-lake	03 May	6.0	10
		20 May	6.5	8
		10 Jun	6.5	12
		02 Jul	4.6	10
		23 Jul	3.7	24
		l3 Aug	4.0	14
		04 Sep	4.0	16
Pigeon	N. end, Boyd Is.	30 Apr	2.4	10
		24 May	1.7	6
		12 Jun	3.0	12
		03 Jul	3.8	12
		04 Sep	4.5	16
		27 Sep	--	12
Pigeon	Nogies Cr. Bay	30 Apr	2.5	--
		06 May	2.0	--
		02 Jun	1.5	12
		16 Jun	1.5	--
		02 Jul	1.3	14
		04 Aug	1.3	--
		15 Sep	2.0	--
		20 Oct	2.0	--
Pigeon	North End	10 May	--	12
		21 May	5.0	8
		03 Jul	3.9	14
		09 Jul	4.6	20
		22 Jul	3.0	16
		12 Aug	3.5	16
		03 Sep	4.0	20
		23 Sep	3.8	16
Stony	Main Channel	23 Apr	4.5	4
		20 May	4.0	8
		11 Jun	4.0	12
		03 Jul	4.5	24
		23 Jul	4.5	10
		12 Aug	4.5	20

Lake	Location	Date	Secchi Depth, m	Total Phosphorus, ppb
		02 Sep	4.8	16
		23 Sep	5.5	16
Upper Buckhorn	Buckhorn Narrows	14 Jun	--	16
		04 Jul	2.9	24
		22 Jul	2.7	16
		01 Aug	2.7	16
		13 Aug	1.7	20
		04 Sep	3.5	20
		24 Sep	3.4	20
Upper Buckhorn	Mid-lake	18 Jun	2.0	20
		02 Jul	2.1	16
		23 Jul	2.0	26
		04 Aug	2.8	--
		12 Aug	2.0	16
		03 Sep	2.0	16
		24 Sep	3.0	12
Upper Stoney	End, deepest part	30 Apr	6.1	8
		13 May	4.3	12
		10 Jun	--	10
		03 Jul	5.5	8
		22 Jul	5.5	8
		13 Aug	5.5	8
		03 Sep	6.0	8
		24 Sep	7.5	8

Appendix B

K.L.S.A. Mission Statement

The Kawartha Lake Stewards Association objects are to carry out a coordinated, consistent, water quality testing program (including bacteria and phosphorus) of lake water on lakes within the Trent Canal System watershed. The Kawartha Lake Stewards Association will ensure water quality test results, prepared by an accredited laboratory with summary analysis, are made available to all interested parties. In future years the Kawartha Lake Stewards Association may expand its water quality program and may concern itself with other related matters.

Appendix C – K.L.S.A. Members

Executive

Jim Keyser, Chair – Lower Buckhorn Lake Owners' Association
Pat Moffat, Vice-Chair – Lovesick Lake Cottagers' Association
Kathleen MacKenzie, Vice-Chair – Association of Stony Lake Cottagers
Jeff Chalmers, Sec/Treas. – Birchcliff Property Owner's Assoc. (Clear Lake)
Peter Fischer, Director – Katchewanooka Lake
Mark Potter, Director – Newcomb Drive Cottagers' Association (Lower Buckhorn)

Other Volunteers

Marv Purdy – Pigeon Lake
Sharon Matthews – Sugar Bush / Tall Cedars (Pigeon Lake)
Bob Meadows - Sugar Bush / Tall Cedars (Pigeon Lake)
Harry Woolcott – Concession 17 Pigeon Lake Cottagers' Association
Sheila Gordon Dillane - Concession 17 Pigeon Lake Cottagers' Association
Bev Watson – Pigeon Lake Environmental Association
Betty Evans - Pigeon Lake Environmental Association
Andrew Davidson – North Pigeon Lake Ratepayers' Association
Susan Iles – Big Bald Lake Cottagers' Association
Caryl Elver – Big Bald Lake Cottagers' Association
Richard Deans - Big Bald Lake Cottagers' Association
Doug Russell – Harvey Lakeland / Sandy Lake
Chief Keith Knott – Curve Lake First Nation
Joe Taylor - Curve Lake First Nation
Keith Clark – Sandbirch Estates (Upper Buckhorn)
Mary and Mike Belas – Buckhorn Sands Property Owners' Association
James Goddard – Buckhorn Heights Cottage Association
Doug Lorne – Lower Buckhorn Lake Owners' Association
Ray Walduck - Lower Buckhorn Lake Owners' Association
Wayne Stovell – Deer Bay Reach Property Owners' Association
Marlene Steele – Lovesick Lake Cottagers' Association
Paul Kyselka – Upper Stoney Lake Cottagers' Association
Karl and Kathy MacArthur - Upper Stoney Lake Cottagers' Association
Bob Woosman and Gillian Fisher – Association of Stony Lake Cottagers
Judith Platt – Kawartha Park Cottagers' Association
Jim Gillespie – Clear Lake (West Side)
Peter Lindsay – Kawartha Fisheries Association

Appendix D – Donors and Sponsors of the K.L.S.A.

Trent Severn Waterway

Mattamy Homes, Big Island, Pigeon Lake

Council for the Township of Galway, Cavendish and Harvey

Council for the Township of Douro-Dummer

Council for the Township of Smith, Ennismore and Lakefield

Buckhorn Tourist Association

Curve Lake First Nation, Chemong Lake

Lake Edge Cottages, B & B, Katchewanooka Lake

Carol McCanse, Katchewanooka Lake

North Pigeon Lake Ratepayers' Association

Pigeon Lake Cottagers' Association

Big Bald Lake Cottagers' Association

Buckhorn Sands Property Owners' Association

Lower Buckhorn Lake Owners' Association

Lovesick Lake Cottagers' Association

Upper Stoney Lake Cottagers' Association

Association of Stony Lake Cottagers, Lower Stony

Birchcliff Property Owners' Association of Douro-Dummer, Clear Lake

Appendix E – Treasurer's Report
Revenue and Expenses
November 27, 2001

Revenue

Big Bald Lake Cottager's	207.00	
Mattamy Homes, Big Island, Pigeon Lake	1,500.00	
Douro-Dummer Council	750.00	
Galway-Cavendish-Harvey Council	1,000.00	
Northern Pigeon Lake Ratepayers Association	300.00	
Lovesick Lake Association (plus $200 credit from Lkfld. Res.)	225.00	
Pigeon Lake Cottagers Association	200.00	
Lower Buckhorn Lake Owners Association (3 x $100.00)	300.00	
Buckhorn Tourist Association	400.00	
Carol McCanse (Katchewanooka)	50.00	
Lake Edge Cottages, B & B (Katchewanooka)	85.00	
Curve Lake First Nation, Chemong Lake	200.00	
Smith-Ennismore-Lakefield Council	500.00	
Trent Severn Waterway, Start up funds received	2,500.00	
Upper Stoney Lake Association	523.71	
Birchcliff Property Owners Association, Clear Lake	250.00	
Association of Stony Lake Cottagers	500.00	
Association of Stony Lake Cottagers (Private testing)	332.56	
Interest on prime-linked GIC investment	6.41	
Interest on prime-linked GIC investment	39.65	
Buckhorn Sands Property Owners (for 2002)	200.00	
Total	10,069.33	$10,069.33

Expenses

Jim Keyser for phone, copies, coffee		-208.77	
Patricia Moffat		-109.26	
Jim Keyser for Bus. Appl., Ins., etc. (608.20 less 82.20)		-526.00	
Lakefield Research	C30021	-670.94	
Lakefield Research	C30590	-979.80	
Lakefield Research	C30723	-1,115.48	
Lakefield Research	C30832	-921.22	
Lakefield Research	C30833	-1,046.73	
Lakefield Research	C35081	-913.78	
Jim Keyser for phone & director's insurance		-334.08	
Bank Service Charges		-5.00	
Bank Monthly Fees		-10.05	
Bank OD Handling		-5.00	
	Total	-6,846.11	-6,846.11
	Net Balance		$3,223.22

Receivables

Trent Severn Waterway, balance of commitment		500.00	
	Total	$500.00	

By A. Jeffrey Chalmers
Secretary Treasurer

McCOLL TURNER

McColl Turner LLP
Chartered Accountants
362 Queen St., Peterborough, ON
K9H 3J6

Telephone 705 743 5020
Facsimile 705 743 5081
Email ptbo@mccollturner.com
Website www.mccollturner.com

January 29, 2002

Mr. Jeff Chalmers
Secretary-Treasurer
Kawartha Lakes Stewards Association
c/o The City of Peterborough
500 George Street North
PETERBOROUGH, ON
K9J 2R4

Dear Jeff:

We are pleased to enclose five (5) unbound copies of the financial statements for the Kawartha Lakes Stewards Association of the first period ended November 30, 2001. To this statement we have attached our Review Engagement Report dated December 21, 2001.

If you, or any Board member, have any questions concerning the enclosed financial statements, please let us know.

Yours sincerely,

MCCOLL TURNER LLP

George A. Gillespie, Partner

GAG/cd
Encls.

Financial Statements of

KAWARTHA LAKES STEWARDS ASSOCIATION

November 30, 2001

Review Engagement Report

Balance Sheet

Statement of Revenue and Expenditure

McCOLL TURNER

McColl Turner LLP
Chartered Accountants
362 Queen St., Peterborough, ON
K9H 3J6

Telephone 705 743 5020
Facsimile 705 743 5081
Email ptbo@mccollturner.com
Website www.mccollturner.com

REVIEW ENGAGEMENT REPORT

To Mr. Jeff Chalmers, Secretary-Treasurer

KAWARTHA LAKES STEWARDS ASSOCIATION

We have reviewed the balance sheet of Kawartha Lakes Stewards Association as at November 30, 2001 and the statements of revenue and expenditure for the period from May 1, 2001 to November 30, 2001. Our review was made in accordance with Canadian generally accepted standards for review engagements and accordingly consisted primarily of enquiry, analytical procedures and discussion related to information supplied to us by the Association.

A review does not constitute an audit and consequently we do not express an audit opinion on these financial statements.

Based on our review, nothing has come to our attention that causes us to believe that these financial statements are not, in all material respects, in accordance with Canadian generally accepted accounting principles.

McColl Turner LLP

Peterborough, Ontario
Decemeber 21, 2001

KAWARTHA LAKES STEWARDS ASSOCIATION

Balance Sheet - November 30, 2001

(unaudited)

ASSETS		
Current Assets		
Cash and Guaranteed Investment Certificate	$ 3,223	
Amounts receivable	500	$ 3,723
LIABILITIES		
Current Liabilities		
Accounts payable and accrued liabilities		$ 150
FUND EQUITY		3,573
		$ 3,723

Statement of Revenue and Expenditure

Period from May 1, 2001 to November 30, 2001

(unaudited)

REVENUE		
Trent Severn Waterway grant	$ 2,500	
Municipal grants	2,450	
Private contributions	5,073	
Pledge receivable	500	
Interest	46	$ 10,569
EXPENDITURE		
Water testing fees	5,647	
Telephone, copies and other administrative costs	382	
Registration fees and insurance	526	
Directors' liability insurance	270	
Accounts payable	150	
Bank charges	21	6,996
EXCESS OF REVENUE OVER EXPENDITURE FOR THE PERIOD AND FUND EQUITY - end of period		$ 3,573