Sherbrooke Lake Access Advisory Committee

AGENDA

Location: Parkdale/Maplewood Hall 3005 Barss Corner Road

January 14, 2016 at 7 p.m.

Page

1. CALL TO ORDER
2. APPROVAL OF AGENDA
3. APPROVAL OF MINUTES OF December 10, 2015 MEETING AS CIRCULATED
4. BUSINESS ARISING FROM THE MINUTES
5. UPDATE ON MEETING HELD WITH KINGS COUNTY PLANNING RE: WATER MONITORING PROGRAM 1-22
6. CORRESPONDENCE TO MODL COUNCIL 23
7. UPDATE FROM HISTORY/KNOWLEDGE OF THE LAKE SUB-COMMITTEE
8. PUBLIC CONSULTATION PROCESS UPDATE
9. PUBLIC INPUT (15 minutes)
10. NEXT MEETING DATE
11. INCAMERA ITEM as per the MGA 22 (2) (a) - Land Negotiations
12. ADJOURNMENT

Meeting Notes with Kings County Planning re: Water Monitoring Program

December 9, 2015

A meeting with Mark Fredericks was held on December 9, 2015 to discuss the Kings County Lake Monitoring Program. Those at the meeting were Chair of the Sherbrooke Lake Access Advisory Committee, Larry Hagell, Barrie Clark, author of the Sherbrooke Lake Water Quality Reports, Shanna Fredericks with the Bluenose Coastal Action Foundation and Trudy Payne, Director of Recreation Services for MODL. The following are the highlights from the meeting:

Mark explained the County of Kings began thinking about a lake monitoring program in the mid 90's primarily due to cottage development. Initially the County only had lakeshore zoning for seasonal occupancy but has changed to allow for year round living. There was interest from recreational use and the County wanted to develop some kind of model for record keeping. They looked at the lake capacity model that was developed in Ontario. A group of scientists do review the results each year.

The County looked at the Ontario model which lead to policies and a lake capacity model being developed in Kings County. There is a willingness to change the model based on new science.

The monitoring program gives a picture of the water quality of the lake.

The policies that are in place now states if development reaches it maximum in order to build a person needs to go through a site plan approval process (Lake George, Murphy Lake has met the threshold).

The lakeshore districts are made up from a 1,000 foot buffer around each lake. If zoned S1 development can happen; if zones S2 development is possible but a site plan is required. There is a 65 foot setback.

There are no policies on fertilizers.

Kings County does support and encourage recreational use such as swimming and boating.

Climate change appears to be warming the water.

They do have a homeowner's education program.

Is there a control lake that has no development? Hardwood Lake -has a Girl Guides Camp and a logging lot nearby.

Each year they calculate the number of dwellings on the lake (mapping analysis) – this does take staff time.

Concerning the lake monitoring program the Planning Department hires two summer staff and one of the students primarily runs the program – coordinating the program, setting up volunteers and ensuring samples are gathered. The cost with the sampling of 13 lakes is about $25,000 which does not include the summer students' wages.

Each year they get a report from WSP (engineering firm) who analyze the results and produces a report which cost between $5-$6,000 which is included in the $25,000.

The Ontario Conservation Authority does a lot of lake monitoring.

Kings County does yearly training of volunteers/staff in April in Kentville and would be open to help train any volunteers from Lunenburg County.

Sherbrooke Lake is about 12-14 km long and 2 km wide. Mr. Fredericks suggested get to the deepest part of the lake and mark the location with an anchor – should have two or more locations; train volunteers at the beginning of the season. Could set up a water quality committee.

Currently there are three locations being tested at Sherbrooke – chlorophyll is not currently being monitored. For six years the water has been monitored at Sherbrooke which test for PH, nitrogen, phosphorus and temperature. Circulation patterns of the lake are not being tested. They do not get direct support from the Dept. of the Environment. Volunteers take all the samples on the same day. This water monitoring is done in partnership with the Bluenose Coastal Action Foundation.

The question was asked were recreation facilities taken into account when doing the formula they use looking at development capacity and water quality. Mr. Fredericks got back in an email and stated "To follow up on the model factor for the public access points like Aylesford Lake beach and Lake George provincial park, it's our understanding that these **were** considered as an equivalent to X number of homes. This was estimated by the scientists running the model and I believe they considered features like the length of shoreline, and amount of vegetation removed, to determine an equation that would represent the impact of this type of land use. That answer doesn't give you much to work with, but we have in the past, and would encourage you to depend on scientific researchers or experts in the field of fresh water ecology, to guide the process. We have a Technical Advisory Committee for this purpose, made up of DNR staff, University researchers and Consultants in this field.

I would suggest contacting some fresh water research groups to get some ideas on how to move forward. They might be able to provide options, or suggest the best method for establishing a baseline for Sherbrook Lake's water quality. This work might also be able to identify unique characteristics within the watershed, potential threats like clear cutting, farming and other land uses that can have an impact water quality. You may find this can be done by the Coastal Action Foundation or a University group, or a consulting firm like WSP. We have put out RFP's in the past, and this has allowed the Municipality to pick from the available options. "

MUNICIPALITY
of the County of Kings

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1-888-337-2999

Hours of Operation
Monday - Friday
8:30am - 4:30pm
(Atlantic Time)

Office Location
87 Cornwallis Street,
Kentville, Nova Scotia

PO Box 100
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Kentville, Nova Scotia
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Lake Monitoring Program

The Kings County Lake Monitoring Program is an important component of the Municipalitys efforts to preserve and protect its fresh water lakes on the South Mountain Plateau. Volunteers and Municipal staff have collected lake water samples since 1997, and have compiled an extensive database on lake water quality.

The information collected is analyzed in order to compare lakes, observe trends and see if the land use controls are working. Together, the Municipality and volunteers link water quality science with land use planning to ensure that clean and sustainable lakes can be enjoyed for generations to come.

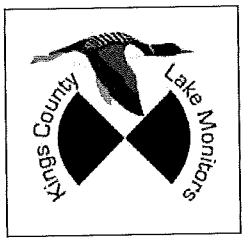
From May to October dedicated volunteers set out once a month to collect water samples, record water temperatures and take water transparency readings using a Secchi Disk. A total of 11 lakes are monitored. Please explore this site to find out more about the lake monitoring program, water quality results, and the land use planning policies and regulations controlling development around Kings County lakes.

The Municipality of the County of Kings would like to thank all past and present volunteers for their enthusiastic participation. Their efforts contribute to our understanding of lake ecosystems and help educate lake residents about the importance of local environmental stewardship.

2014 Sampling Dates:
May 25, June 22, July 20, August 17, September 21 and October 19

If you are interested in participating in the program as a volunteer, or would like more information, please contact the following:

Mark Fredericks
Planner
(902)690-6276



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The Program Today

The Kings County Lake Monitoring Program continues the efforts that began back in 1997. Monthly water sample collection starts in May and runs through to October. Volunteers collect samples from Hardwood Lake, Loon Lake, Lake George, Aylesford Lake, Gaspereau Lake, Murphy Lake, Little River Lake, Black River Lake, Lumsden Pond, Tupper Lake and Sunken Lake. New volunteers are always welcome to help out with sampling on any of the lakes, and other lakes may be considered in subsequent years. The aim of the Kings County Lake Monitoring Program is to maintain the water quality in our watersheds so that residents and visitors may enjoy them in the future.

Goals

- to address citizen's concerns regarding lakeshore development impacts to Kings County lakes by working with lake associations and municipal, provincial and federal departments
- to put a planning tool in place to aid decision making
- to develop a phosphorus loading model capable of predicting changes in water quality as a result of shoreline residential development
- to consider municipal planning and approval activities in the context of predetermined water quality objectives for Kings County lakes
- to implement a volunteer lake monitoring program to provide feedback to validate the model and facilitate awareness and stewardship initiatives in Kings County

Acknowledgements

- Our Volunteers
- Acadia Centre for Estuarine Research, in particular Mike Brylinsky, for conducting training workshops for volunteer monitors and data analysis
- The Province of Nova Scotia and Environment Canada's Canadian Wildlife Service, for ongoing technical support for the monitoring effort
- Community groups: Lake George Property Owners Society, Black River Lake Association, Kings County Wildlife Federation, Bluenose Atlantic Coastal Action Program, Shubenacadie Watershed Environmental Protection Society, SGLWAB

Become a Volunteer!

Mark Fredericks
Planner
(902)690-6276

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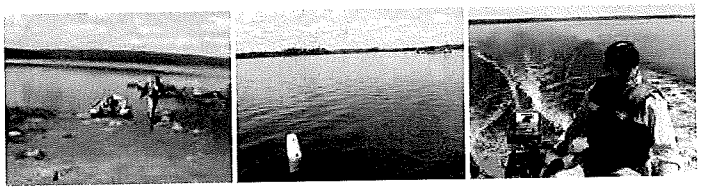
The Aylesford Initiative



In 1994 a multi-stakeholder group, spear-headed by municipal staff, formed to address longstanding concerns about environmental impacts from residential development on Kings County lakes. This group comprised representatives from all three levels of government as well as local community groups, (e.g. Aylesford Lake Property Owners Society, Lake George Property Owners Society) and the development community. The group's objective was to implement a tool which could be used to determine the extent of development that could exist around a given Kings County lake while maintaining its water quality at acceptable levels. This tool was to be used by the Municipality in a planning context.

Municipal Council adopted a phosphorus loading model in 1997 which predicts changes in water quality as a function of shoreline residential development, watershed geology, and individual lake dynamics. Municipal staff are now in a position to consider development proposals within the context of pre-determined water quality objectives set for county lakes in the **Municipal Planning Strategy.**

Council implemented the Volunteer Water Quality Monitoring Program to validate and calibrate the model, as well as to facilitate awareness and stewardship initiatives in the county. The Kings County Wildlife Federation and The Acadia Center for Estuarine Research (notably Dr. M. Brylinsky) have provided local involvement in developing and coordinating this volunteer monitoring effort.

The Nova Scotia Department of the Environment has contributed funding and technical support for all aspects of this initiative since its inception, including the monitoring efforts. Similar support has been provided to other community groups involved in volunteer monitoring activities; e.g. Bluenose Atlantic Coastal Action Program, Soil & Water Conservation Society of Metro Halifax, Shubenacadie Watershed Environmental Protection Society, and Shubenacadie Grand Lake Watershed Advisory Board.

SHORELINE ALTERATION: THE COST OF A ROOM WITH A VIEW

Mark Fredericks
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Kings County Lake Monitors

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Transforming Theory into Practice

In the summer of 1997, Kings County Council adopted amendments to its Municipal Planning Strategy and Land Use By-law to manage land use around fresh water lakes. The amendments implemented a new approach to controlling shoreline development on freshwater lakes in Nova Scotia. This approach also relied on the Municipality's adaptation of a scientific method that ties development controls directly to the capability of the lakes to sustain development.

The aim of this paper is to describe the new planning framework, the process which led up to it and Council's expectations in terms of the benefits of a proactive watershed management program. This paper is one of a number of ways in which we are sharing the Kings County experience with interested municipalities and organizations. Not only do we believe the Kings County approach has put a tangible face on the notion of sustainable development, we have committed to a long-term monitoring program that sets out to prove it.

Click here to view the full **Theory into Practice.pdf**

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Kings County Lake Monitors

Transforming Theory into Practice:
Lakeshore Planning in Kings County, Nova Scotia

"...The transition to sustainable communities involves new kinds of adaptations, and some alternative ways of doing things. While we may find the transition difficult, the long-term rewards should prove well worth the effort."
(Sustainable Development in Residential Land Use Planning Grant 1993: page 87)

INTRODUCTION

In the summer of 1997, Kings County Council adopted amendments to its Municipal Planning Strategy and Land Use Bylaw to manage land use around fresh water lakes. The amendments implemented a new approach to controlling shoreline development on freshwater lakes in Nova Scotia. This approach also relied on the Municipality's adaptation of a scientific method that ties development controls directly to the capability of the lakes to sustain development.

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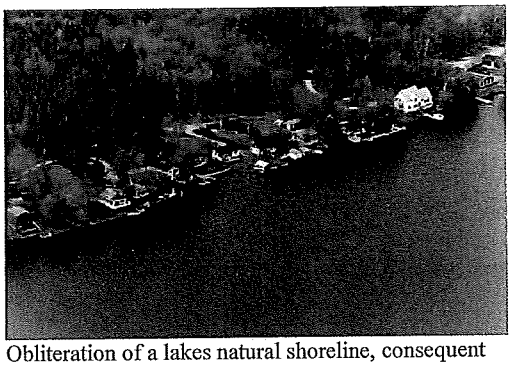
SHORELINE DEVELOPMENT AND THE STATUS QUO:

County Council and residents of Kings County take great pride in the pristine lakes and rivers that characterize the watersheds of the South Mountain Plateau. In the 1950s, 60s and 70s, cottage development spread around dozens of freshwater lakes in a 400 square kilometre watershed. At least three generations of cottagers have summered on many of these lakes.



Obliteration of a lakes natural shoreline, consequent habitat loss and reduced water quality.

Unfortunately, by the mid 1970s the more accessible lakes experienced stresses which led to public health concerns for recreational swimming. In fact, health officials closed the public beach at Lake George in successive years due to high coliform levels. The contamination was attributed to cottage development, and either the failure of or complete absence of private septic systems along the shoreline. In the face of a growing stigma of pollution on Lake George, cottage owners finally organized. With the support of the Provincial Department of Health, and a ground swell of citizen action, cottagers turned the situation around within just a few years. Almost twenty years later, Lake George can boast excellent water quality and a safe and appealing public beach despite a

significant amount of development along its shores.
At about the same time that the public was debating the pollution problem at Lake George, cottage owners on nearby (and downstream) Aylesford Lake were growing concerned on another front. Already sensitized to the potential for water quality problems associated with development, residents on that lake were preparing to fight some major development proposals.

The ensuing contest between proponents and objecting property owners generated a number of studies and reports on potential water quality impacts. The debate culminated in 1983, after the Nova Scotia Environmental Control Council ruled that the Province should place a moratorium on development on the east side of Aylesford Lake. The Environmental Control Council advised that the moratorium should remain in effect at least until a tool was developed for predicting water quality impacts. The Council further ruled that efforts should be directed at upgrading private septic systems on existing cottage lots, a recognized source of contamination.

Some in the development community contend that cottage owners are simply averse to any more lake shore development strictly because of the threat to their privacy. A water quality impact model offers assurance that any future question of over development is addressed on scientific grounds rather than political or emotional ones.

THE REAL PROBLEM

To quote from the 1986 Report on Trophic Status for the Ontario Lakeshore Capacity Study, "Community Planners have always found it difficult to determine objectively the impact of development on the natural environment." (Ontario 1986: page i). In the face of development proposals elected decision-makers are often torn between the promise of economic gains (read increased tax base and employment) for the Municipality and the diverse interests of a community and its citizens. Community planners traditionally rely on general principles of site location and design in evaluating development proposals. At times, we need to be more precise and thorough in predicting the physical and social consequences of today's planning decisions on tomorrow's world.

In that respect, Kings County, is determined to learn from the experience of other communities. By understanding the pitfalls encountered by property owners, private developers and public agencies, the County is learning to adapt and apply strategies shown to be successful in the Muskokas Lakes District and the Rideau Valley.

While the practical results and on-going water studies of the Kings County resource management strategy are some years away, the fact that we are not in crisis affords us the opportunity to refine modeling technology, development controls and public education programs.

THE APPROACH TO PLANNING - 1979 TO 1998

Municipal Council embraced comprehensive land use planning in 1979, with the adoption of the Kings County Municipal Development Plan and Zoning Bylaw. The Plan focused on conserving the agricultural land base. It also provided for urban development away from what were considered rural resource districts including recreational lakes, the Minas Basin and Bay of Fundy shores.

The new approach to watershed planning builds on the original planning concept of protecting opportunities for recreational uses on and around fresh water lakes. That protection takes the form of controlling development around lakes, and providing

for direct public access to beaches and water. In the past 19 years, the Municipality has regulated subdivision, road building and lot and housing standards. The Municipality has acquired public access points on lake fronts through the five percent open space regulations and outright purchase of land. Promoting environmental awareness and stewardship are new and promising directions that Council is moving in. Lake capacity modeling is the catalyst for this change in attitude and this change in planning approach.

DEFINING WATER QUALITY

The emphasis of the Municipality's new planning approach is to minimize development impacts on water quality. Not surprisingly however, if three people were asked to define water quality, they would likely offer three different answers. Fundamentally, the goal of County Council is to try and prevent any further deterioration from the current – and relatively good– conditions, and encourage restoration where water quality seems to be threatened. For planning and regulatory purposes however, a more precise definition was essential. Consequently, in scientific and limnological terms we are talking about **trophic status**, or the level of nutrients in the water body. Many scientists equate this measure of water quality to its biological productivity. Eutrophic lakes which are very rich in organic content such as algae, as well as larger aquatic plants (pickerel weed, water lilies and cattails) make a great home for ducks and other waterfowl. Those in local sport-fishing circles know that bass also thrive in moderately enriched "mesotrophic" conditions.

For many lake users however, water quality concerns have to do with how suitable water is for recreational uses such as swimming, boating, and other water contact activities. For most, quality is subjective and a matter of aesthetics. Nevertheless, those aesthetics often have a direct connection with public health and ecological stability. The revised planning approach also envisions possible future uses for lakes. Historically, County residents have enjoyed an abundant water supply from the ground. One day, communities may have to turn to other sources such as the lakes. Therefor, it is important to ensure good water quality, should the need arise.

Once it defined water quality, the Municipality was positioned to work within its authority to ensure new development does not diminish water quality or limit public access to lakes. Like agricultural conservation, watershed planning relies on partnerships with other authorities at the Provincial and Federal Governments levels.

Water Quality on Kings County lakes is defined on the basis of average concentration of two trophic state indicators, Total Phosphorus (TP) and Chlorophyll a (Chl a). TP is considered the limiting nutrient which drives the production of algae. Chl a is a measure of algal production and is a more visible indicator of water qaulity. Mean annual concentrations of TP=10µg/l generally typify the boundary between oligotrophic (nutrient poor) waters and mesotrophic (moderately enriched) waters. The Municipality uses the latter (mean concentrations of Chl a=2.5µg/l in the water column) as the actual criteria used to define Water Quality Objectives. These water quality objectives are used to determine suitable levels of development in a given watershed.

THE KINGS COUNTY LAKE CAPACITY MODEL

Although County Council's initial 1979 planning program identified and recognized the importance of recreational lakes in terms of ensuring continued public access in the

face of private cottage development, water quality was never directly addressed. The Environmental Control Council hearing presented a new challenge to any political takers. Even though it took almost another ten years of lobbying, the Lake George Property Owners' Society in concert with some property owners on Aylesford Lake, pursued the establishment of proactive planning and development limits on County lakes.

In 1992, the Municipality of Kings County committed to undertake a study to investigate lake capacity. The project that began officially in 1993 was a partnership representing provincial and federal agencies, the development sector and County Council. Moreover the project was a partnership with the cottager community namely the Lake George and Aylesford Lake Property Owners who persisted in seeing this matter addressed.

THE OUTCOME: Theory Meets Practice

Council with its Planning Advisory Committee received a consultant's report and recommendations from its technical steering committee in November of 1995. Recommendations focused on using a lake capacity model as advocated fourteen years earlier by the Environmental Control Council. In addition, the entire study was a learning exercise, which opened a door to understanding the effects of shoreline development, not only on water quality but, on fish habitat, waterfowl and other wildlife. More importantly, the study presented some simple steps, which the Municipality (with the cooperation of the public) can take to maintain water quality and the natural character of the lakeshore. As a major force behind this process, cottagers have inherited roles as stewards, which will influence the environmental and ecological integrity of the watershed for generations to come.

HIGHLIGHTS OF THE PLANNING APPROACH

Just as the adoption of Federal soils capability maps were an integral part of designating Agricultural Land Use Districts on the Valley floor in 1979, the Lake Capacity Model gave Council the ability to establish water quality objectives relevant to each lake in the watershed. The Municipality, by the end of the project, was in a position to set development limits on a scientific basis rather than a political one. Council favoured this new approach not only because it enabled all the stakeholders an opportunity to contribute equally in the solution, it cast the whole watershed in a new light. A study triggered by concern about development impacts from thirty or forty hectares of shorefront property on one lake, led to comprehensive planning for the entire watershed. On top of that, by leaving the responsibility of an on-going monitoring substantially in the hands of a volunteer group, (one staff member is assigned the task of coordination) Council has garnered the support from the community at large.

The following section summarizes how that technical approach translates into a combination of planning policy and development control.

1. Distinction between the Coastal and Freshwater Lake Shores

In 1979, Council designated Shoreland Districts on both inland lakes and coastal areas based largely on relative recreational capability; that is proximity to communities, transportation, access to beaches, facilities. (due to extreme tidal ranges, the Fundy coastline within Kings County offers limited opportunities for swimming or recreational boating.)
Council's revised policies now distinguish shoreland zones along the Bay of Fundy and Minas Basin from

zones around inland lakes, primarily based on water quality concerns. The differing treatment has important implications for planning. Within the Watersheds of the South Mountain Lakes, Council has set fairly precise limits on development not only along the immediate shoreline of lakes, but for any form of development which is potential source of phosphorus contribution to tributary streams.

2. **Provisions for Permanent Residential Development on Private Roads**

Prior to the new Policies and regulations coming into effect in August 1997, Council restricted development on private roads to seasonal use only. Since August, Council has opened up all Shoreland Zones –both coastal and inland– to permit permanent year-round residential use on private roads. Given some reservations about long term land use implications for the Municipality, Council was emphatic that this concession is meant to accommodate that segment of the population which does not expect the level of municipal and other public available to residents along public roads. Those services include road maintenance, snow clearing, garbage collection, school buses, and emergency support.

3. **Water Quality Objectives for Lakes in the South Mountain Watersheds**

As the result of its study into Lake Carrying Capacity and shoreline development, the Municipality now has a planning tool in the form of a **predictive model** which can assess the relative impacts of development on water quality.

Since the cumulative effect of development over time has the potential to reduce water quality relative to set objectives, Council has chosen to limit total cottage development where necessary, so that water quality remains within acceptable limits. Chlorophyll a concentration in lake water is an indicator of trophic state and the parameter which Council decided to use for the statement of water quality objective.

Based on this approach, actual development controls include:

- Limits on the number of new homes and cottages which may be eligible on water front lots under Shoreland zoning -by application for a development-building permit alone; and

- Policies to require the use of development agreements on lakes where greater control over development impacts is necessitated to prevent further reductions in water quality.

The ability to predict changes in water quality assumes a certain per unit contribution of phosphorus originates from each individual dwelling. The model assumes that there is a uniform amount of phosphorus generated and estimates a uniform "average user day or occupancy" per dwelling through the year. Whereas some cottages for example may be occupied a total of 30 days per year by 3 persons, others may provide year round housing for 5 or more occupants. Consequently, it is important to understand that proposed limits to development, are set on the assumption that with few exceptions, shoreline development will remain principally seasonal in nature; at most 1/3 permanent dwellings. Therefor, periodic monitoring of occupancy or user rates to determine the ratio of seasonal dwellings to permanently occupied (dwellings) will be necessary to ensure total cottage development is consistent with water quality objectives.

A Pristine Lake in Southwestern Nova Scotia

Adopting shoreline policies, which are targeted at preserving water quality, presents Council with a second opportunity. This initiative allows Council to raise public awareness of the connection between development, shoreline alteration (*contouring and grading of the slopes* leading to the water), and the ecological diversity at the edges of the land and water (the "*Riparian Zone*"). This ecological diversity translates into economic value in terms of property value, recreational swimming, boating and fishing, and tourism. Minimizing shoreline disturbance means encouragement of water front lot owners to use common boat launch facilities rather than private ramps, and therefor, better access to the water for all potential lake users. Ultimately, acceptance of this planning approach has the potential to lead to a genuine and lasting community ethic toward the environment - an essential cornerstone of sustainable development.

4. Waterfront Building Setbacks - Freshwater Lakes and Tributary Streams

While Council's new lot development regulations are not rigorously stated, requirements for home building on waterfront lots include the following:

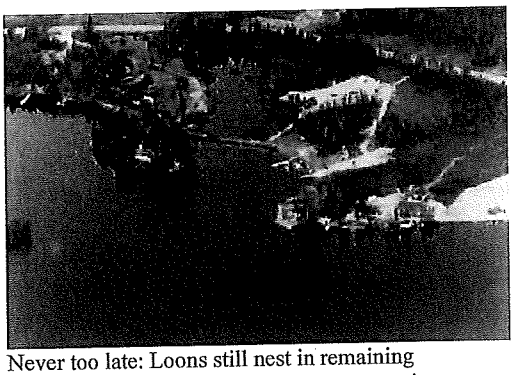
- A uniform building setback from the lakeshore of 65 feet -a 15 foot increase from the former 50 foot building setback.
- A restriction on "alteration of land levels" to encourage lot owners to maintain as much as possible, the natural grades within the 65 foot building setback;
- A restriction on the removal of, vegetation within the 65 foot building setback;
- A minimum 4 foot setback for boathouses to reduce shoreline alteration and habitat destruction below the high water level.

5. Development Agreement Options

At the time of adoption the Municipality had modeled and set water quality objectives for eighteen of its more than 45 lakes. Except for those building lots already in existence, the policies provide for Council to control waterfront development on lakes in watersheds other than those modeled in the original watershed, through the use of development agreements as follows:

- Lakes with designated **Special Character Areas** such as ecologically diverse coves, embayments, channels and shorelines characterized by extensive wetlands.
- Substantially undeveloped Hardwood Lake, as the original carrying capacities study "Control" lake, to limit development related impacts as much as possible to provide a baseline for future testing of predictive modeling and low-impact (phosphorus retention) development methods;
- On tributary streams and non-**Shoreland District** lakes connected to downstream **Shoreland District** lakes;
- Lakes which have not been evaluated for development capacity relative to water quality objectives;

- Lakes which have been identified as at capacity relative to water quality objectives;
- Non-residential development such as resorts, fish hatcheries, or other eligible commercial uses.



Never too late: Loons still nest in remaining wetlands now protected by Open Space zoning adopted in 1997.

6. Wetlands Protection

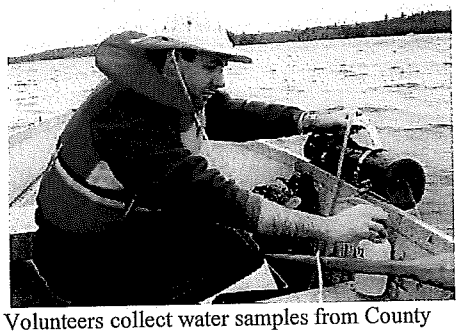
Council's new management framework allows for zoning (to Environmental Open Space) of shoreland areas delineated on official Provincial Department of Natural Resources Forest Cover series maps (1996), as wetlands and unsuitable for active development. Now zoned Environmental Open Space, these valuable wetland areas are protected from filling and development.

7. Common User Facilities for Launching Boats

Council's lake development philosophy emphasizes shoreline protection. This means, that in the interest of water quality and wildlife conservation including (waterfowl, fish and amphibians) all property owners along the lakeshore are discouraged from significantly altering the shoreline in front of their property. As an incentive to discourage construction of private docks and boat ramps, the Municipality continues to work with cottage owners, sport fishers and other interested groups to make sure environmentally designed facilities are located in strategic lakeshore sites. The first of several Municipal boat launches was constructed on Aylesford Lake and open for use in 1998.

8. Community Water Quality Monitoring Programs

Among its newly adopted policies, Council committed to set up a volunteer program in partnership with the Provincial Department of the Environment and any interested individuals and organizations, to monitor lake water quality in the South Mountain watersheds. Council followed through with that commitment and struck a Committee to establish a six-year program of water sampling on several lakes. In 1997 and 1998, volunteer lake monitors collected monthly samples and recorded temperature and Secchi disk readings from May through October.



Volunteers collect water samples from County lakes monthly, through the ice-free season.

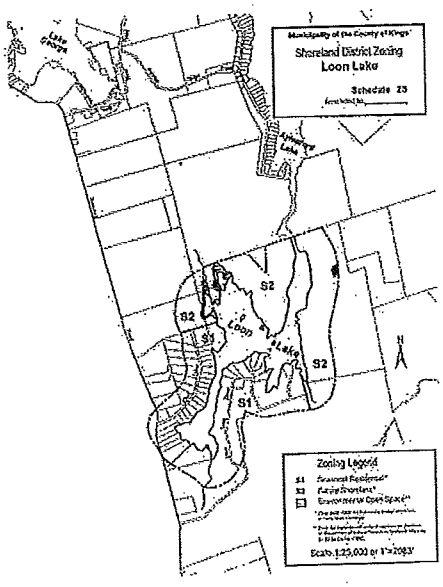
The data provided by the sampling program allows for ongoing refinement and validation of the Kings County trophic state model as a predictive tool for Nova Scotia Watersheds. As with any scientific methodology, refinements to the predictive capability of the model and ongoing monitoring of water quality should lead to corresponding reviews and improvements to shoreline policies from time to time. (A major research institution in the Province is already

engaged in a study of overland phosphorus export to obtain data specific to Nova Scotian landscapes).

Perhaps more importantly, the direct involvement of cottagers, anglers, boaters and other non-expert lake users in the collection of data is a way of educating the public and fostering stewardship.

9. Shoreland District Lakeshore Zoning Maps

As a result of adopting this watershed management approach, the Municipality adopted a series of 32 maps at a scale of 1:25,000 showing individual lakes and lake groups with more detail than previous 1:75,000 scale zoning maps. The new digital map base includes property information as well as wetland areas more than 1 hectare in size and within 300 metres of a lake.



10. Site Evaluation Guidelines

Adapted from a system used by the Rideau Valley Conservation Authority in Ontario, Kings County is developing its own methodology for site assessments in the Shoreland District. Once complete the methodology will constitute the official manual for reviewing development proposals, with a focus on runoff control, habitat protection and visual resource management along the shoreline.

CONCLUSION

Trophic State Modeling is a valid and practical municipal planning tool. Kings County Council used its model to estimate the existing trophic state of individual lakes, and set official water quality objectives aimed at maintaining water quality within the current range. Through the use of water quality objectives in conjunction with appropriate site development practices and the public participation, the future of Kings County lakes is promising. While zoning and development controls are dependent on drawing some hard lines in terms of lot size requirements, or setbacks, or cottage limits, the Municipality recognizes that the model's predictive ability is a relative measure, not an absolute one. Therefor, Council adapted this technology to the local geographic and climatic context with a willingness to experiment, learn and readjust its watershed management techniques over time. Most agree that success in the long term depends on an open-minded approach and responsible leadership at the local level.

Michael MacIntyre is Senior Planner with the Municipality of the County of Kings, Community Development Department, past chair of the technical steering committee for the Kings County Lakeshore Capacity Model project, and Project Manager for the ongoing Kings County Volunteer Lake Water Quality Monitoring Program.

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Province of Nova Scotia 1982 *Nova Scotia Environmental Control Council Transcripts on Hearings on A Development Moratorium for the East Side of Aylesford Lake,* Kings County, N.S.

The Rideau Valley Conservation Authority. 1993, *Municipal Site Evaluation Guidelines,* by J.L. Richards & Associates, Ottawa, On.

[1] *with Michael Michalski Associates and Raymond Walton Hunter Planning and Engineering Consultants*

3.5 SHORELAND DISTRICTS

Lakes and coastlines are a natural resource which should be accessible to all residents. Although the Fundy coast offers a cool summer breeze, its rugged shoreline and the cold Fundy tides limit the scope of water recreational activities. Hence the freshwater lakes on the plateau of the South Mountain provide the greatest recreational potential.

Along the Fundy coast and the Minas Basin Council has designated additional seasonal residential areas as Shoreland Districts based on existing development trends. Erosion has reached serious proportions in some coastal Shoreland Districts, especially Kingsport and Evangeline Beach. In these cases only existing seasonal residential areas are designated in recognition of the high risks to development.

Erosion is a serious issue in North Grand Pré where it has claimed an average of 50 feet along the coastline of Evangeline Beach over the past four decades. Development along this coastal area can increase rates of erosion. Council recognizes that there is a public interest to mitigate the impacts of coastal erosion so that the safety of human life and property are not compromised.

Similarly, Council designated the shorelines around many freshwater lakes as Shoreland Districts. The growing demand for seasonal residential development in Kings County is illustrated by the municipal records which show a consistent increase in seasonal residential development since 1963. Between 30 to 40 new lots are being created each year and this is expected to continue, in fact it is expected to increase. As this demand increases, public access to lakes and beach areas may be significantly reduced by the concentration of private development on water frontage. In addition to concerns of public access, the capacity of the inland lakes to sustain development must be addressed.

Along the Fundy coast and the Minas Basin additional cottage areas are designated Shoreland Districts based on existing development trends.

The current approach to shoreland management involves two essential steps. The first step is to identify the high capability recreation lands and designate portions to accommodate public and private development and access. The second step is to recognize the sustainable limits to use and to protect the integrity of the natural features, processes, and wildlife habitats which all contribute to the high capability. The Kings County Lakeshore Capacity Model, completed in 1995 provided Council with a planning tool designed for predicting development impacts on freshwater lakes.

Up to 1996, Shoreland Districts were established around the larger, more accessible lakes on the South Mountain. Council excluded smaller lakes from designation given their physical limitations for both seasonal residential development and recreational activities such as boating, swimming, and fishing. However, the lakeshore capacity model's ability to predict development impact on lake water is dependent on factors

related to land uses and resource activities in the entire watershed. We now know that development around upstream lakes and streams, as well as the natural landscape and human settlement contribute to lake water quality. To maintain water quality in those lakes already recognized for high recreation potential, planning efforts need to consider not only the direct impacts on the immediate lakes undergoing development, but the surrounding watershed too.

Prior to opening up additional undeveloped lands for seasonal residential development however, an assessment of the effects of further development should be undertaken. Matters to consider include the effect on existing development in terms of the social, visual, and natural character, lakeshore biophysical capacity, and effects on lake water quality as well as consideration of the maintenance of future public access to the lakes.

For the most part, in terms of residential use, Shoreland Districts are intended for seasonal residential development. However, Council has conceded to permit year round residential development whether on public or private roads. However, in keeping with the general goal of this Strategy to concentrate development in Growth Centres where services can be provided economically, services to remote areas such as the Shoreland Districts will be limited to basic garbage collection at central locations along public roads.

3.5.1 Shoreland District – Objectives

3.5.1.1 To adequately accommodate demand for seasonal residential and recreational development including campgrounds.

3.5.1.2 To ensure the availability of shoreland for the use and enjoyment of the general public.

3.5.1.3 To permit the development of commercial facilities primarily serving the seasonal population.

3.5.1.4 To allow for permanent development on public and private roads.

3.5.1.5 To minimize disturbance of environmentally sensitive natural features and habitats on inland lakes and coastal shoreland areas.

3.5.1.6 To protect the quality of lake water by establishing water quality objectives for individual lakes, and where necessary development criteria which result from lake trophic state carrying capacity studies.

3.5.1.7 Where lake trophic status is unknown or has reached adopted water quality objectives, to provide for alternative development approval mechanisms with criteria intended to significantly limit impacts on lake trophic status, maintain fish and wildlife habitat and shoreline aesthetics.

3.5.1.8 Increase awareness among developers, residents and other lake users of lake and shoreline ecology and to actively promote water quality protection measures.

3.5.1.9 Initiate a volunteer self-help water quality monitoring program for fresh water lakes on the South Mountain.

3.5.2 Shoreland District Policies

3.5.2.1 Council shall establish a "Shoreland District" (S) designation. This designation will apply to areas intended primarily for seasonal residential development. However, commercial and permanent residential uses may be permitted. Lands along the Fundy Coast and the Minas Basin where development already exists and lands around the freshwater lakes of the South Mountain may be designated as Shoreland Districts on the Rural Future Land Use map. Council may, by amendment to this Strategy, designate additional coastal or inland areas as Shoreland Districts in the future.

3.5.2.2 The full range of public services will not be available for development on private roads. It is Council's intent that prospective new lot owners will be advised that services will be limited at the time any new lot is created, with an appropriate information note stamped on every approved plan of subdivision. Council will explore additional means of ensuring that residents along private roads are aware of the limited availability of services.

3.5.2.3 Council shall establish three zones in the Land Use Bylaw for application exclusively within the Shoreland Districts:

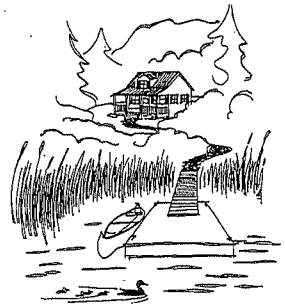
a. Coastal Shoreland (CS) Zone

b. Seasonal Residential (S1) Zone

c. Future Shoreland (S2) Zone

THINGS TO CONSIDER:

TIME OF DAY



The best time of day for sampling is considered to be between 10:00am and 2:00pm. The sampling time should be as close to 12:00 noon as possible to get typical temperature readings.

WEATHER

Safety first. If for any reason the weather makes it unsafe to sample, let the volunteer coordinator know that you'll sample on the alternate date. Also, **don't sample if more than 25 mm (1 inch) of rain has fallen in the past 24 hours.** This will affect the reliability of the water samples. If more than this amount of rain has fallen, let the volunteer coordinator know you will collect samples on the alternate date. If you do take samples after a heavy rain, make a note of this on your record sheet.

CONTAMINATION

Some of the nutrients analyzed by the lab are present in very small quantities. As a result, the samples are very sensitive to contamination. Make sure the sampler and sample bottles don't come into contact with things like oil, sunscreen or cigarette ash.

SEDIMENT

Secchi depth readings and some lab tests can be influenced by sediment in the lake water. Try to avoid stirring up sediment by setting your anchor gently (or tying up to the buoy) and taking water samples from the opposite side of the boat from where you take Secchi and depth readings.

FOR MORE INFORMATION:

See the Lake Monitoring Program webpage on the County website at **www.county.kings.ns.ca**

Or contact Ben Sivak, Program Coordinator: by phone at **902-690-6102** or by email at **bsivak@county.kings.ns.ca**

LAKE MONITORING PROGRAM

MUNICIPALITY OF THE COUNTY OF KINGS
www.county.kings.ns.ca
87 Cornwallis Street
Kentville NS
B4N 3W3

LAKE MONITORING PROGRAM 2009

Water Sampling Handbook

Taking water samples sounds pretty simple, doesn't it?

The volunteer paddles out in the lake, scoops up a bottle of water and turns it in. However, for the samples to be consistent and reliable, a set procedure must be followed time after time. Each month volunteers collect two composite samples. A composite sample is made up of water from the top and middle of the lake. The following steps explain how to take composite water samples for the Lake Monitoring Program.

1 CHECK FOR SUPPLIES

Along with a boat and the required safe boating supplies, a volunteer needs the following sampling equipment:

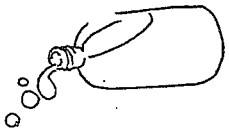
- ☑ Cooler
- ☑ Thermometer
- ☑ Water Sampler
- ☑ Tape Measure
- ☑ Second person for safety
- ☑ Record Sheets
- ☑ Sample Bottles
- ☑ Bottle Labels
- ☑ Secchi Disk

2 FIND SAMPLING STATION

Marked by a buoy, this should be the deepest part of the lake. Measure the depth and record it on your record sheet.

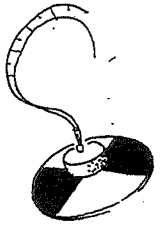
3 RINSE SAMPLING EQUIPMENT

Rinse 2 sample bottles and their caps, as well as the water sampler. Collect the rinse water from about 0.25m deep on one side of the boat and rinse the bottle and cap on the other side. Rinse the equipment 3 times.



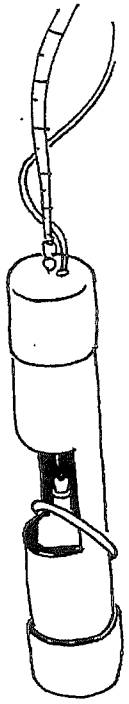
4 MEASURE SECCHI DEPTH

Measure the Secchi depth. Remove sunglasses for this step, as they may influence results. Attach the Secchi disk to your tape measure and lower it into the water on the boat's shaded side. Remember to always tie equipment to the boat to prevent loss. Record the depth when you can no longer see the disk. Retrieve the disk, recording the depth when you can see it again. The average of the two is the Secchi depth.



5 SAMPLE TOP OF THE LAKE

Take a water sample from the other side of the boat. Put a rinsed bottle in the water sampler and lower the sampler until it is 0.25m deep (Make sure it's tied to the boat first!). Pull the cord to release the plug from the bottle. Retrieve the sample. Pour half the collected sample into the other sample bottle.



6 SAMPLE MIDDLE OF THE LAKE

Put one of the half-full bottles back into the sampler and take another sample to fill the bottle. This time, take the sample from 2 times the recorded Secchi depth or 1m from the bottom of the lake (whichever is farther from the bottom).

7 LABEL FIRST COMPOSITE SAMPLE

You now have one composite sample. Label the bottle, recording the lake name, sample depths, your name, and the date.

8 SAMPLE MIDDLE OF THE LAKE AGAIN

Repeat step 6 (fill the other sample bottle with a water sample from the appropriate depth).

9 LABEL SECOND COMPOSITE SAMPLE

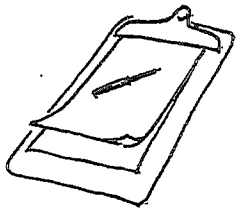
This is the second composite sample. Label the second bottle, recording the lake name, sample depths, your name, and the date.

10 TAKE TEMPERATURE READINGS

You'll need to measure the air temperature and water temperature at 0.25 metres deep and 1 metre from the bottom. Make sure you leave the thermometer enough time to get an accurate reading.

11 FILL OUT RECORD SHEET

Fill out the rest of the record sheet, filling in data like date and time, precipitation, cloud cover, and general observations like wildlife sightings.



12 KEEP SAMPLES COOL

Store the samples in a cool dark place (preferably a cooler with freezer packs, not ice!), until a municipal employee picks them up.

MUNICIPALITY OF THE COUNTY OF KINGS

Guidelines for Improving Existing Development

Development that took place before the current regulations or widespread knowledge about lake ecology often took a form that may negatively impact lake water quality. The areas of these developments with the most potential for improvement are shoreline, dock, vegetation, and wastewater.

⚠ **This brochure provides general advice. Please contact the Municipality and Nova Scotia Environment for approval before beginning any lakeshore project.**

Shoreline

1 Worried about erosion? Use the power of plants. Root systems are great at holding soil together. If you choose to use plants, consider planting native species like Willow or Red Osier Dogwood.

2 Rethink the retaining wall. These destroy natural habitat and may actually contribute to erosion by redirecting wave energy toward the wall's foundation and surrounding shoreline. If your retaining wall is deteriorating, consider softening your shoreline by breaking up the wall or adding rocks and plants. The right mix of rocks and vegetation will protect against erosion and also preserve lake habitat.

Dock

3 Only take a quarter. If planning additions or alterations to your dock, boathouse, or lake access point, consider that together these should affect no more than 25% of your lot's shoreline.

4 Choose wisely. If you're thinking about building or replacing a dock, consider a floating design connected to shore by a raised walkway. This will be sensitive to habitat and aquatic life.

Vegetation

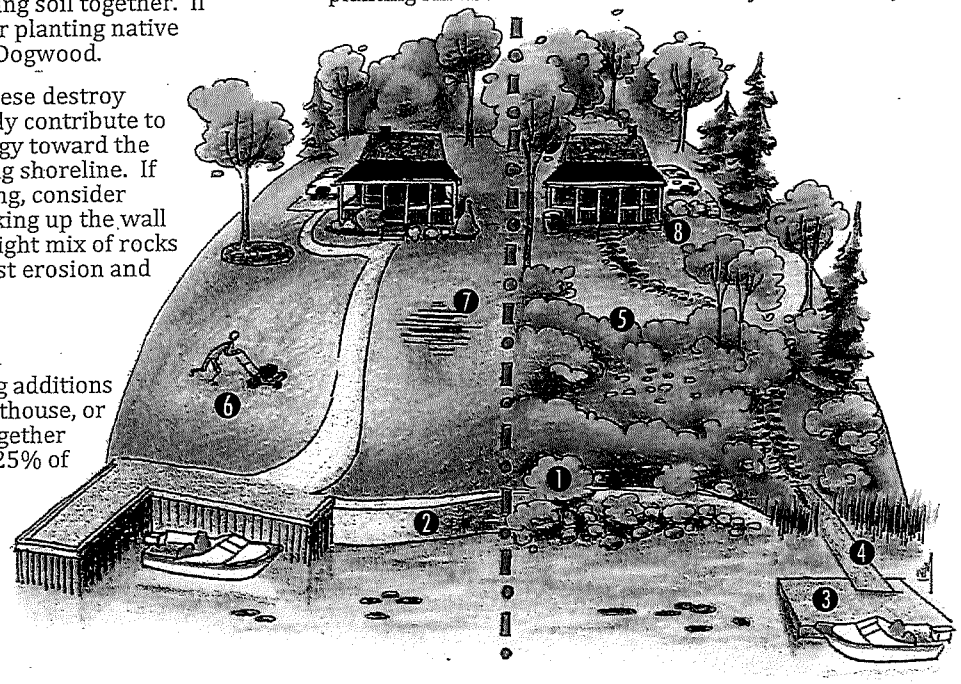
5 Let the buffer be. This is likely *the* most important thing you can do for your lake. You can start simply by not mowing near the lake. The buffer will start growing on its own.

6 Limit the lawn. Redesign your lawn so it's as small and far from the lake as possible. This not only helps minimize erosion and runoff, but maximizes your relaxation time at the lake.

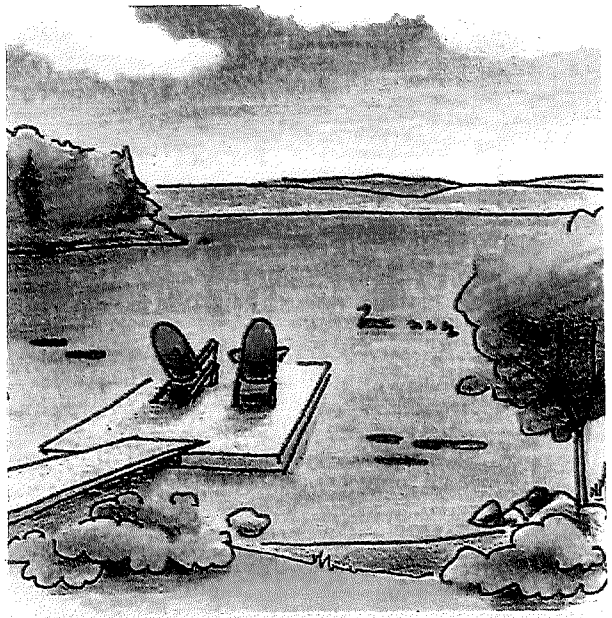
Wastewater

7 Don't forget what's gone down the drain. Making sure your septic system is working properly helps make sure harmful nutrients or chemicals aren't seeping into the lake.

8 Redirect runoff. The slower water drains off your lot, the more contaminants will be filtered out and the less chance it will erode your land. Slowing runoff may be as simple as placing a rain barrel under your downspout or planting shrubs where water drains off your driveway.



Developing Near a Lake



Guidelines for New Development

Guidelines for Improving Existing Development

MUNICIPALITY OF THE COUNTY OF KINGS
87 Cornwallis Street | Kentville NS | www.county.kings.ns.ca
2009

Lakeshore Development

Congratulations. You're one of the lucky few to own land near a lake. Besides plans to develop your land, you likely have plans to take long swims on hot summer afternoons, try your luck with your rod and reel, and kick back for long evenings enjoying the view. But imagine the same activities if the lake blooms with algae, the fish leave for cleaner water, and cottages seem to outnumber trees.

The Municipality's goal for lake shore development is to allow recreational and residential uses without harming the natural environment. To do this, the Municipality has adopted special land use regulations around the lakes on the South Mountain Plateau.

Most lakeshore properties can be developed ***as-of-right,*** meaning a building permit may be granted right away, as long as all requirements are met. In certain circumstances, properties can only be developed through a ***site plan approval,*** a process that requires land owners to map out planned development before building permits are granted. Permits are also needed from Nova Scotia Environment to make alterations to the shoreline and build docks.

Contacts

Municipality of the County of Kings

To learn more about Lakeshore Planning in Kings County:
Ben Sivak, Planner
690-6102

To find out how your lot can be developed and for development permits:
Development Control
690-6152
ltomblin@county.kings.ns.ca

Nova Scotia Environment

For information about environmental regulations and permits:
Kentville Office
679-6086
http://www.gov.ns.ca/nse/permits

Guidelines for New Development

Whether you develop as-of-right or by site plan approval, below are guidelines for minimizing negative impact on lake water quality.

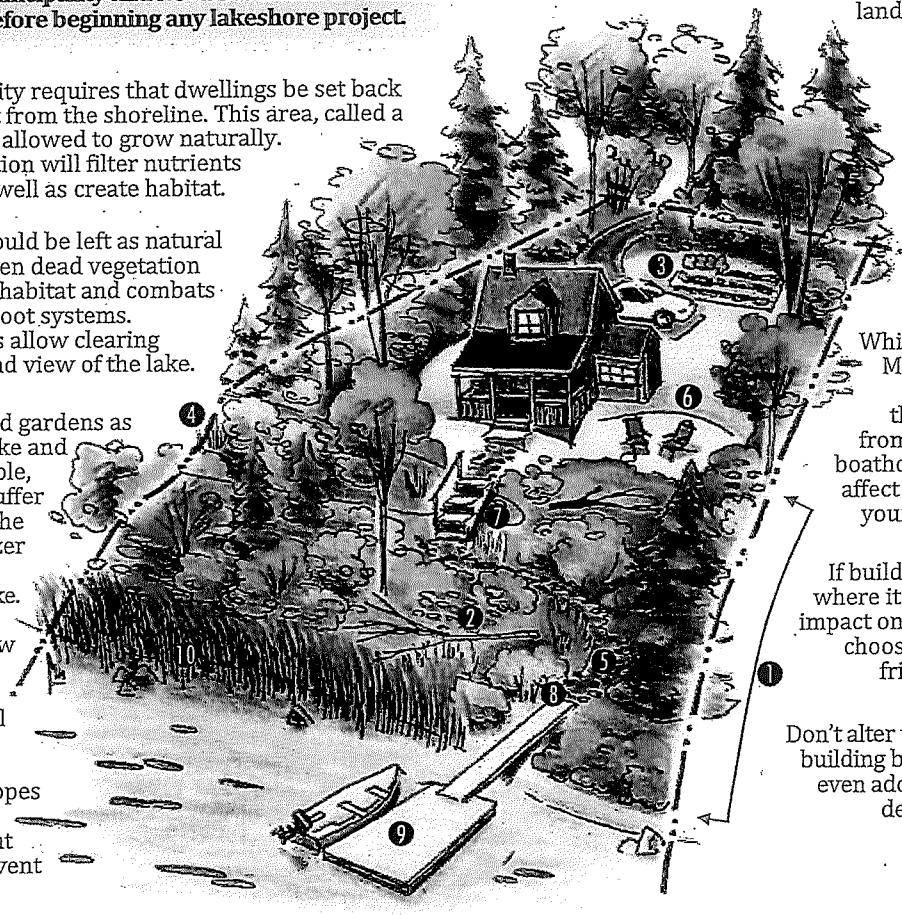
⚠ **This brochure provides general advice. Please contact the Municipality and Nova Scotia Environment for approval before beginning any lakeshore project.**

1 The Municipality requires that dwellings be set back at least 65 feet from the shoreline. This area, called a buffer, should be allowed to grow naturally. The thick vegetation will filter nutrients and pollution as well as create habitat.

2 The buffer should be left as natural as possible. Even dead vegetation creates food and habitat and combats erosion with its root systems. Municipal bylaws allow clearing only for a path and view of the lake.

3 Keep lawns and gardens as far from the lake and as small as possible, preserving the buffer and minimizing the amount of fertilizer or pesticide that may reach the lake. Keep in mind that the Land Use Bylaw only allows 50% of the lot to be cleared of natural vegetation.

4 Keep steep slopes naturally vegetated or plant as needed to prevent erosion.



5 There should only be one path through the buffer and it should be made of permeable material like wood chips or gravel.

6 Manage runoff from buildings or driveways by diverting it with landscaping so it has time to be absorbed.

7 Instead of altering natural terrain to build paths, consider using a raised boardwalk or steps to negotiate slopes or wet areas.

8 While not encouraged, Municipal bylaws do allow boathouses if they are at least 4 feet from the bank. Docks and boathouses together should affect no more than 25% of your lot's water frontage.

9 If building a dock, place it where it will have the least impact on existing features and choose an environmentally friendly floating design.

10 Don't alter the shoreline by building barriers, walls or even adding sand or fill. These deaden the shoreline by destroying habitat.

Illustrations by Nathan MacLeod

MEMO

TO: **Municipality of the District of Lunenburg**

FROM: **Sherbrooke Lake Access Advisory Committee**

RE: **Petition**

DATE: **January 12, 2016**

At the December 10, 2015 Sherbrooke Lake Access Advisory Committee meeting, Mr. Greg Stokes presented the Committee with the attached petition. The Committee is forwarding this to Council for your information. The petition will also be included as part of the final report that Committee will be presenting to Council as part of the appendix.