



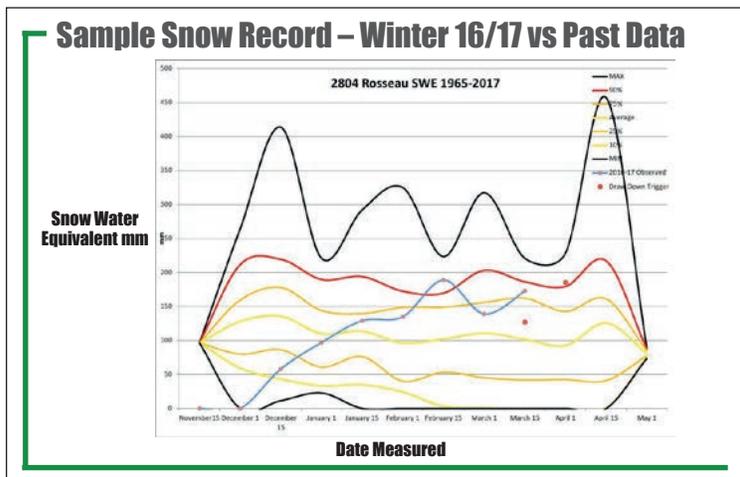
Water Level Management – It’s about the snow AND rain

We get many letters this time of year from shoreline residents concerned that lake water levels appear too high and that these levels will cause Spring floods. With three floods in the past decade [2013, 2016 & 2019] flooding has become a major issue, not only in Muskoka, but across the Province.

But what factors lead to floods? A review of the snow, temperature and rainfall records shows floods are mostly preceded by development of a heavy snow pack followed by rapid melt then followed by heavy rain events. It is the combination of events that produce the volumes of water that overwhelm the combined storage capabilities of the lakes in the watershed. For spring 2019, Muskoka Watershed Council calculates that the water input to the watershed system was about one cubic kilometer [1 km³] while the maximum controllable water storage volume [all lakes being drawn down to the maximum] was 0.6 km³, leaving 0.4 km³ to be routed through the system as a flood. Yet, at the margins, extra drawdown can make a difference.

Looking at the flood years summarized in Table 1 [below], it can be seen that in three of four flood years, from 1985 to 2020, the snow accumulated on the ground was above “normal”. [Snow accumulation is expressed as Snow Water Equivalent -SWE- which is the water yielded when the snow is melted.] For above normal SWE, the Water Management Plan [2006] calls for additional drawdown.

Figure 1 – Sample Snow Record vs SWE Statistics for the years 1965 - 2017



The cumulative effects of snow + melt + heavy rain + secondary rain produced too much water for the system to absorb in 2019, 2013 and 1985. In 2008, Lake Muskoka was drawn down due to high SWE by 0.37 m [14.5 inches] more than the “normal” drawdown. This was enough to offset the 46mm rain in 2008. In 2016, a below normal SWE year, the lesser drawdown plus four rain storms produced a flood – 0.09 m or 3.5 inches higher than the 2008 peak level.

Table 1 – Lake Muskoka Flood Records

Year	Flooding [Lake Muskoka]	Snow > Normal SWE [mm]	Rain>51mm [over 2 days]	2 nd Rain>25mm [within 6 days]	Total Input Water mm
2019	Yes	Yes [187]	Yes [58]	Yes [36]	281
2016	Yes	No [82]	Yes [55]	Yes[25+36+37]	235
2013	Yes	Yes [134]	Yes [76]	Yes [33+26]	269
2008	Near Miss	Yes [194]	No [46]	No	240
1985	Yes	Yes [202]	Yes [59]	Yes [28]	289

¹Apologies to residents of Bala Bay and Bala Reach that have experienced “floods” in other years. It is abundantly clear that, due to different individual dock heights, there are different views on what level constitutes a flood. This article is based on the flood levels defined in the Muskoka River Water Management Plan.

² Sale, P. et al, 2020, “The Case for Integrated Watershed Management in Muskoka”, Muskoka Watershed Council, 25pp.

The “Rule Curve” for Lake Muskoka [page 3] shows how water levels are managed throughout the year. Levels are closely controlled for navigation purposes throughout the summer. In the early fall water levels are drawn down to encourage lake trout to spawn at levels that will protect their eggs/fry from freezing during spring drawdown. Lake levels then are raised back up into December. From late December to April, water levels are drawn down to prepare for spring snow melt. The depth of drawdown is adjusted depending on the snow pack.

What does this mean for 2021? To date there is below normal snow accumulation. Lake drawdown is following the dashed “target line” in the MRWMP [2006] Rule Curve [page 3]. This provides some comfort that the risk of a flood this year is reduced. But there is still a risk of significant snow accumulation over the next eight weeks of winter.

continued on page 3

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President's MESSAGE



Goodbye 2020 - Hello 2021
Happy new year everyone! As I write this, our year has started off like the last one ended but, this one has infinitely more hope for a return to the former routine of our lives. By the time you read this, my 91-year-old mum will have been vaccinated which will eventually allow her to live without fear – what a relief! Not everyone has been so lucky.

There are debates taking place about just what “return to normal” is or should be. The pandemic has exposed our vulnerabilities, our creativity, our flexibility, and our inequities. It made heroes of people we may have taken for granted, but never again. We have much to be thankful for and there have been some silver linings this past year that are worth keeping. Let's look at some of the lessons that COVID-19 has taught us.

TECHNOLOGY

I think we can all agree that it is high time that broadband be readily available in Muskoka. Significant efforts are being made to enhance coverage as a result. While it has its drawbacks as we try and live a simpler life at the lake, having access to broadband and cell coverage was essential to let us work from the lake and for all of us to have access to public services, meetings, and events.

Similarly, what would we have done without Zoom or any one of the other video platforms that allowed us to have quarantines to keep in touch with friends and family? Before COVID I could not imagine why I needed TEAMS or Zoom – now I cannot imagine life without them. They allowed us to continue to provide some MLA activities, such as our seminars on topics of interest to cottagers and our annual meeting - and we didn't have to take precious time away from the dock to attend. Maybe that is a lesson worth keeping?

CARING FOR OTHERS

COVID exposed the vulnerabilities of our society, particularly the elderly and those of low income who did not have the luxury of working at home or retreating to the lake to isolate. I was touched by the many selfless gestures by so many, including businesses who despite their challenges donated meals or pivoted to provide their services differently. Thank you to so many members who reached out to us over the spring and summer to share your thoughts and stories.

Remembering to be a good neighbour is something we should all strive for – wherever you are. The MLA Good Neighbour Code released this past summer has been well received and indeed is being used as a model for other lake associations.

MORE TIME FOR THE THINGS THAT MATTER

If there is one thing, I am most grateful for it has been more time to spend with my family. Without my work commute and fewer events to dominate my evenings there has been more time for us – finally a Christmas season that did not feel like a massive time management exercise! Like many of you, I had more time at the lake, courtesy of my new broadband, where I could do my work almost as well as at home. Ontarians rediscovered the value of greenspace and being in nature. Bikes, kayaks, canoes and paddleboards were in hot demand, as were motorized boats and rental accommodations. We did with less – less shopping, less stuff as we cleaned out closets, and less travel. We embraced our local shops, forsaking big box store shopping. Helping our merchants in the towns and villages of Muskoka became my mission and

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one which I embraced with enthusiasm that was also contagious with our visitors. We hope to see them all operating this spring. Let's continue to embrace local.

COME BACK BETTER

2020 taught us many things, including the impact that our lifestyle has on our planet. During lockdown emissions were drastically cut in many large cities resulting in significant improvements in air quality. Countries saw the possibilities to use economic recovery programs to grow back stronger and cleaner. Muskoka is not immune to climate change or pollution.

As we grow, as we renovate, as we recreate, we need to be mindful of how we can contribute to the long-term health of the environment we love. Throughout the past year, the MLA has remained actively engaged in the new official plan for Township of Muskoka Lakes and the Minett Official Plan amendment process. Our members were engaged in the Muskoka Watershed Advisory Group whose report was released in the fall. Through these plans and policies, we will ensure that Muskoka remains clean, green, strong and resilient.

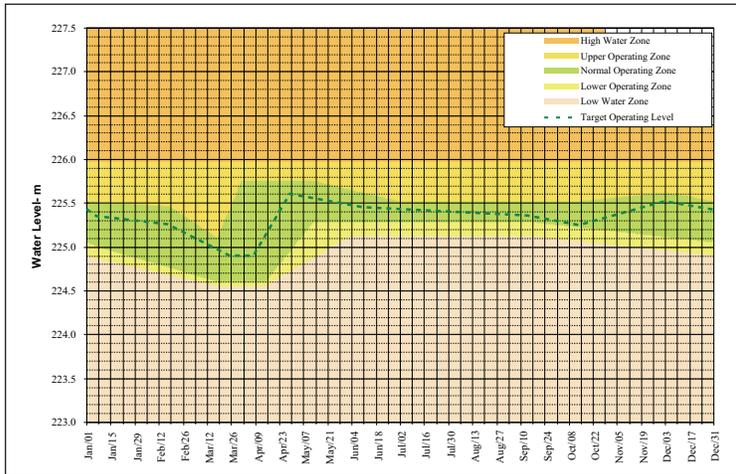
The MLA takes the long view – our lakes will be here for generations to come and the decisions of today will affect those who come to enjoy what we have long into the future. Let's all remember 2020 - the year we saw how things could be different.

Deborah Martin-Downs - President



Water Level Management – It's about the snow AND rain *Continued from page 1*

Figure 2 – Rule Curve for Lake Muskoka (from MRWMP, 2006)



If this happens, lake drawdowns will need to be accelerated. There is also the risk that, even without heavy snow, rains such as in 2016, can

gang up to overwhelm the system. There is currently no reliable way to predict and react to incoming rain. We can see major storms, labelled as Colorado Lows and Texas Lows, tracking across the USA heading towards Southern Ontario perhaps two days in advance. But two days is not much warning and these storms frequently miss Muskoka to the North, to the South or to the East, landing in adjacent watersheds. Climate change is increasing the frequency of spring rain storms, so we need to find ways to mitigate this risk.

MLA will be keeping watch over lake levels, snow pack and weather as the winter progresses. Starting in February our regular Flood Watch communication will be issued weekly to keep you informed. Meantime we look forward to government response to the report by the Muskoka Watershed Advisory Group www.ontario.ca/page/advisory-group-report-protecting-muskoka-river-watershed tied to the Provincial funding promise of \$5 million.

For those wishing more background please see “The Evolution of Water Management in the Muskoka River Watershed” www.muskokawatershed.org/wp-content/uploads/WaterMgmt-Nov2020.pdf

Christopher Cragg – Environment Committee Chair

New Members

Please welcome the following as new members of the MLA! From September 28, 2020 to January 12, 2021

- | | | | | |
|--------------------------|----------------------|-------------------------|-----------------------|------------------------|
| Tascha WROE | Merianne CASTELLARIN | Marion OLIVER | Lucas BRENNINKMEIJER | Gaylen SILVA |
| Michelle GLIED-GOLDSTEIN | Geoff VERSTEEG | Andrew P.E. REBURN | Oliver BRENNINKMEIJER | Hannah MCKINNEY |
| Allan GOLDSTEIN | Bill NANKIVELL | Nancy STEVENS | David KITCHEN | Malcolm MCKINNEY |
| Kevin CHESHIRE | Doug TEAKLE | LAKE OF THE WOODS | Jennifer WALKER | Marissa WIENS |
| Berney SILVERBERG | Davis MITCHELL | STEWARDSHIP ASSOCIATION | Cynthia & Mike | Matthew WALKER |
| Tom MEREDITH | Dawn BESWICK | ACTON ISLAND | MACMILLAN | Robert WALKER |
| Elaine RAKOWSKI | Mark FARROW | ASSOCIATION | Whitney GRANT | David TOMPKINS |
| Patricia JOHNS | John HAYWARD | Andrew RILEY | Andrew SPRUNG | Jennifer JONGSMA |
| Douglas BOWMAN | Daniel DAVIAU | Dave & Tracy STEPHENSON | Caroline JEPHCOTT | Ken MACDIARMID |
| John R. MORRISON | Sharon REGAN | Derek & Anne RILEY | Carrie FLETCHER | Whitney STALKIE |
| Luther WINCHELL | Chris GUTHRIE | Kate RILEY | Charlie WALKER | Charles BRENNINKMEIJER |
| PRISM BUSINESS TRAINING | Lis WIGMORE | Eduard BRENNINKMEIJER | Felicia ROSS | |



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Red, Blue or Amber – The Great Bubbler Debate

If you use a bubbling system on your waterfront to protect your dock or boathouse you may be aware of the great bubbler debate. It revolves around the colour bulb that is best suited to warn snowmobilers of the risk of open water. The Muskoka Ratepayers' Association (MRA) and MLA have researched this bubbler quandary at length and their findings are as follows. Three colours are in play. Red, Blue and Amber. Unfortunately, there are no federal, provincial, district or township standards to direct us. Nor has the Ontario Snowmobile Association declared a standard.

Red- let's deal with red first as it is the easiest to dismiss. A red warning light can be easily confused with a snowmobile brake light and unwittingly lead a rider into open water. Therefore, RED IS NOT RECOMMENDED.

Amber vs Blue - this is more complicated - amber is typically the colour of "caution" (like a caution light to identify a pothole in a road) and in this situation one needs to emphasize that the hazard (open water) is more than caution, it is an element of significant and very real risk. Amber has a couple of weaknesses. It can get lost in low visibility, including fog and snowy conditions and it can appear to be a cottage interior or exterior light. At night, it is nearly impossible to differentiate between the two.

Blue is a warning / emergency colour used by snowplows and the OPP to warn people of danger and caution. Blue is also the most penetrating colour in the dark and performs best in low visibility situations (as a technical aspect, blue lighting is what is used on taxiways at all airports)

So, what's a cottager to do?

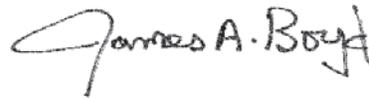
Well given the MLA/MRA joint discussions with snowmobilers and local snowmobile clubs and in the absence of regulatory standards, we are siding with their request for blue warning lights. A case in point:

Our past president spoke with the Mayor of the Township of Muskoka Lakes, an avid sledder, who agreed that Blue Bubbler lights are the most visible for snowmobilers. At the end of the day, it is the snowmobilers we are trying to protect so we have listened to them.

SO, "BUBBLER BLUE" IT IS!

You may want to also be mindful of a couple other bubbler considerations that we have highlighted in the past.

1. A 'Danger Open Water' sign should be prominently placed on your property
 2. Monitor your bubbling and do not overbubble.
 3. You will find that purchasing a LED bulb and a thermostat or timer on your bubbler will be easier on your hydro bill.
- Stay safe out on the Ice!



Jim Boyd
Director, Muskoka Ratepayers' Association



Lawton Osler
Past President, Muskoka Lakes Association



Algae Test Equipment for MLA

Observations of blue green algae blooms are on the rise. In 2020, the Simcoe Muskoka District Health Unit [SMDHU] confirmed the presence of blooms in 9 locations in the large Muskoka lakes and adjacent smaller lakes, up from 3 in 2019. Blooms are most frequently associated with shallow water, warmer water, presence of nutrients [phosphorus and/or organic materials], and still water – not disturbed by wind or water currents. The MLA is part of a Muskoka Watershed Council [MWC]-led investigation program that started in 2019 and will continue in 2021 before a more general roll out, planned for 2022.

A key part of the program is water colour monitoring using a light sensitive device called a fluoroscope. This device [pictured below] can sense the difference between common algae [identified by chlorophyll-a] and blue green algae [identified by phycocyanin]. Each of these has a different light "signature". MLA has now acquired its own fluoroscope to facilitate testing to assist in tracking bloom development and, just as important, dissipation. The MLA portion of the MWC program only measures in the Windermere/Clark Falls area, since this area experienced a blue-green bloom in 2018. Measurements will be extended to other MLA areas on an ad hoc basis in 2021.

It is important to recognize that MLA testing will only supplement the expert responsibilities of the SMDHU and the MECP – Spills Action line in confirming presence and resolution of blooms. A further important step in bloom assessment is measurement of the concentration of toxins. Until proven otherwise, blooms are assumed toxic and harmful to humans when first identified. As such, water in bloom locations may not be used for ANY purpose, such as drinking, cooking or washing, as common treatments [filtering, UV, boiling] are ineffective. Early assessment of toxins, reported as microcystin-MR, may restore water usage if concentrations are below health standard levels. Acceptable levels are 1.5 micrograms per Litre for drinking water and 20 micrograms per Litre for recreational use. Having an acceptable toxin assessment and/or a dissipation of a bloom is important to regain use of water in affected areas. In 2020, blooms were identified as early as July 29th and resolution occurred as late as December 7th, according to SMDHU records. At least two of these sites were measured as non-toxic at an early stage.

For more information on the MWC Pilot Program please see www.muskoka.watershed.org/wp-content/uploads/AlgaeMonitoringProgram-2019Report-September2020.pdf

Christopher Cragg - Environment Committee Chair



Fluorometer Kit with sample tubes and pipettes



Dual Channel Fluorometer



Culinary Corner

Country Potato Soup With Crumbled Bacon

As the cold days are upon us with confidence, I can say its soup season! Our President introduced me to this recipe from a cookbook called “Magnolia Table” by Joanna Gaines. It is a must try!



Prep: 15 Minutes, Cook: 55 Minutes

Crumbled Bacon
½ pound thick-cut bacon

INGREDIENTS:

- 4 tablespoons (1/2 stick) salted butter
- 6 garlic cloves, minced
- 1 medium white onion, cut into ½” dice
- 3 carrots, peeled and cut into ½ inch dice
- 3 celery stalks, cut into ½ inch dice
- ½ cup all purpose flour
- 6 medium -large russet potatoes (about 3 pounds) scrubbed, peeled in stripes, and cut into 1” cubes
- 1-48 ounce box of chicken broth OR 6 cups
- 1 teaspoon kosher salt
- 1 teaspoon freshly ground black pepper
- 1 bay leaf
- 1 cup grated yellow and / or white sharp cheddar cheese (about 4 ounces)
- 1 teaspoon fresh thyme leaves

DIRECTIONS:

1. To make the crumbled bacon: Line a large plate with paper towels
2. If using the oven: Preheat oven to 400 F. Arrange the bacon slices on a baking sheet. Bake until crispy, about 20 minutes. Transfer to the paper towels to drain. Crumble or chop. If using a skillet: Cut the bacon strips crosswise into ¼ inch wide pieces. Place in large skillet and put-on medium heat. Cook,

stirring occasionally, until cooked through, about 10 minutes. Use slotted spoon to transfer the bacon crumbles to the paper towels.

3. To make the country potato soup: In a large soup pot, melt the butter over medium heat. Add the garlic, onion, carrots, and celery to cook, stirring occasionally, until the vegetables are tender. About 10 minutes.

4. Add the flour and cook, stirring constantly for 2 minutes. Add the potatoes, chicken broth, salt, pepper, and bay leaf and bring to a boil. Reduce the heat and simmer until the potatoes are tender but still hold their shape, about 15 minutes. Remove and discard the bay leaf. Slowly pour in the milk, stirring constantly. Simmer until the soup is slightly thickened and the potatoes are fully cooked, about 15 minutes.

5. Ladle the soup into bowls and top with cheddar, thyme, and crumbled bacon.

6. Store leftover soup in a covered container in the refrigerator for up to 3 days. Reheat in the microwave or in a saucepan over medium-ow heat.



Be a gracious host.
Invite your guests to stay with us.

This summer, we all intend to remain vigilant
with distancing and bubbles.

As much as you can't wait to welcome friends and loved
ones back to the cottage, this could be a little awkward.

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while keeping the great indoors to yourselves.

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Photo Contest Winners

Congratulations to this year's Photo Contest Winners! We received over 120 entries and were impressed by the quality of the submissions! The selection wasn't easy but a panel of judges agreed that the following pictures best reflected their respective categories. The first prize winners of each category will receive an 18"x 24" plaque mounted print of their photo, courtesy of Aben Graphics, which will be available for pick up at the MLA Office this summer. For those who didn't win first place, look for your photos in our publications!

WOODEN BOATS



Photo taken by Devon Lawrence

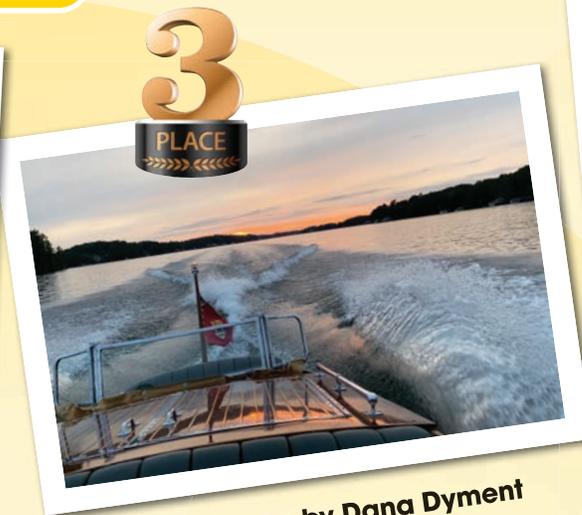


Photo taken by Dana Dymont

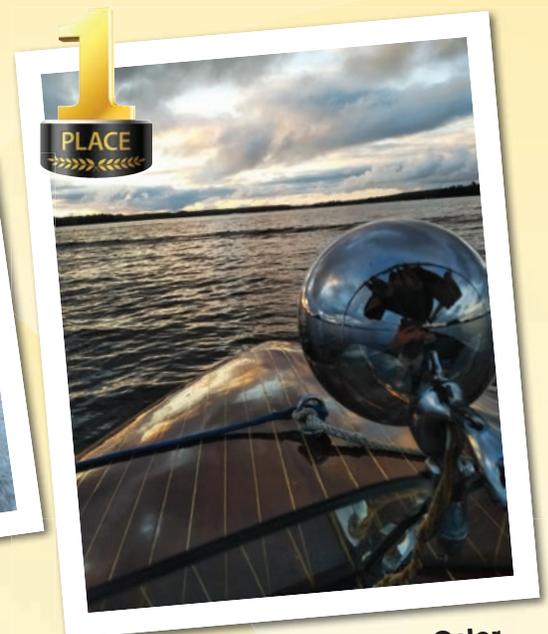


Photo taken by Lawton Osler



Photo taken by Janet Butler



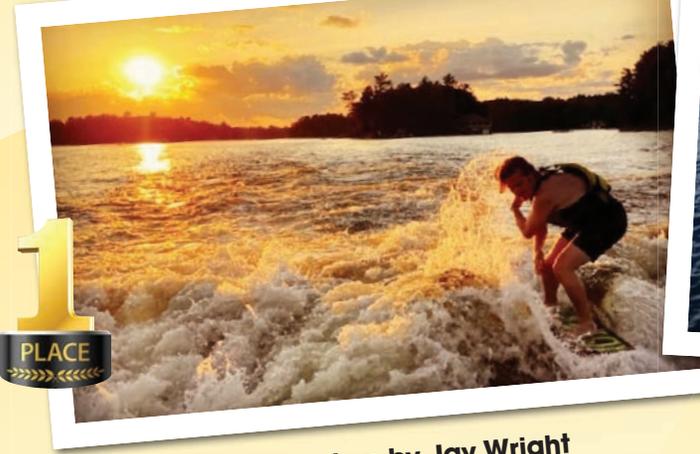
Photo taken by Janet Butler

WAVE THE FLAG



Photo taken by David Munro

LIFE AT THE COTTAGE



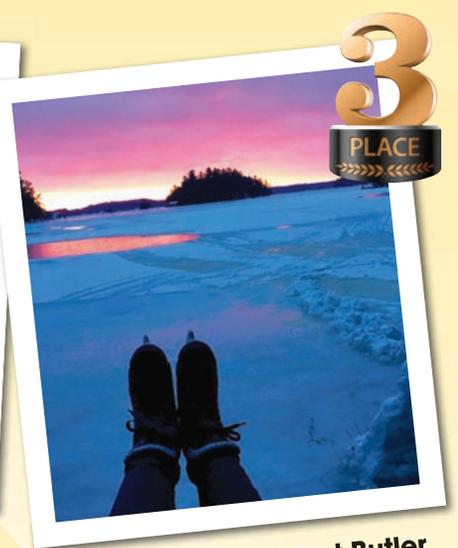
1
PLACE

Photo taken by Jay Wright



2
PLACE

Photo taken by Adam Hutton



3
PLACE

Photo taken by Janet Butler

We were so impressed with these we had to include them for all to see!

HONOURABLE MENTIONS



3
PLACE

Photo taken by Victor Chow



2
PLACE

Photo taken by Dana Dymont



1
PLACE

Photo taken by Nicole Lemelin

At the time this was going to press, the winners of the Yearbook Cover category had not been decided. Look for the winners of this category in the spring edition of *Shorelines!*

MLA 2021 PHOTO CONTEST

Sponsored by **Aben** graphics Ltd. www.abengraphics.com

Entries may be submitted by MLA members and their families in the categories of:

My Muskoka - Show us an image of anything, or anyone that represents "Muskoka" to you.

MLA Kids at the Lake - The next generation!

Winter Wonderland - Snowy scenes or winter activities, show us how you enjoy the cottage in the Winter!

2022 Yearbook Cover - Want to have your photo of Muskoka featured on the MLA yearbook cover?

high resolution, portrait orientation photos only please!

Local's Corner

Muskoka Floor & Window Coverings

Now that many of us are spending more time at our homes and cottages, it's not surprising we notice that the dated '80s carpeting is looking just a tad worn. Or maybe it's the frilly curtains that were so fashion forward 30 or 40 years ago. Time to put the money we're not spending on travel into some cottage renovations or updates.

Muskoka Floor & Window Coverings has been in business for two years. Allan Bradley is the current owner, having spent 15 years working with his in-laws at Muskoka Carpet and Drapery Centre until their retirement. He then opened Muskoka Floor & Window Coverings. His background is in woodworking and carpentry, and he has now turned those skills into this business. He offers a full service, from consulting and recommending the appropriate product, to onsite measurements, and installing and disposing of old carpeting or window coverings.

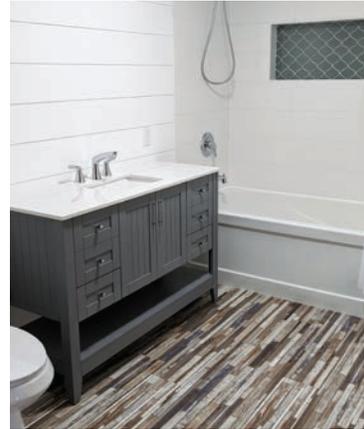
Quotes are broken down into pieces, so as a consumer you know exactly what you are paying for. If you want to dispose of old carpeting yourself – no problem. Out of the quote it comes.

He offers the same service for window coverings, and specializes in Hunter Douglas. He personally measures each window to ensure accurate fit.

It's a pleasure to shop locally, and work with small businesses who take pride in their service.

Muskoka Floor & Window Coverings Inc., Unit C, 385 Bethune Drive North, Gravenhurst, ON P1P 1B8, 705-687-8994, muskokafloor@outlook.com

Cathie Mostowyk



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