

The Future of Our Shores

A report on three Stakeholder Surveys

*...the state of shoreland stewardship and land-use
according to Municipal Planners, Councillors, and Lake
& River Associations in Ontario...*

by Christopher Dennison



The Daniel & Susan Gottlieb Foundation 



TABLE OF CONTENTS

[Acknowledgements](#)

[Introduction](#)

[Methodology](#)

Results:

i) [Lake & River Associations](#)

ii) [Municipal Officials](#)

iii) [Municipal Planners](#)

[Conclusions](#)

[References](#)

ACKNOWLEDGEMENTS

The *Planning **For** Our Shorelands* project and following report would not be possible without the support of our volunteer Steering Committee and Project Contributors:

Barbara King (Watersheds Canada)

Janet Taylor (White Lake Preservation Project)

The Lush Charity Pot

The Daniel & Susan Gottlieb Foundation

The ImpAct Internship Program

Mark Snider

Glenn Tunnock

Leora Berman (The Land Between)

Terry Rees (Federation of Ontario Cottagers' Associations - FOCA)

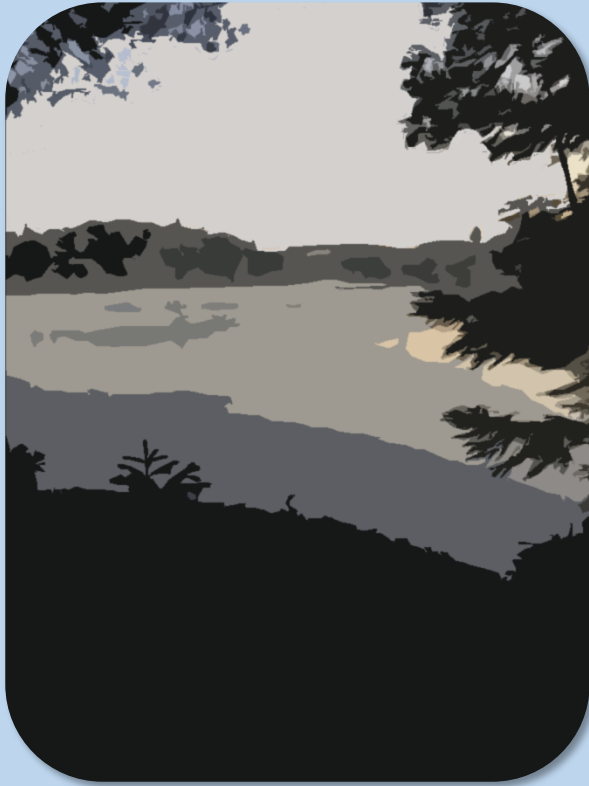
Mary Rae

Katrina Furlanetto (Cataraqui Conservation)

Special thanks also to Danielle Lachance who provided editing and insight for our three Stakeholder Surveys.

Thank you all so much for your continued time and support...

INTRODUCTION



Since the 1970s, scientists and stewardship groups have raised serious concerns about the lack of protection afforded to wetlands, lakes, and rivers in Ontario. These warnings have often gone unheeded, and in recent years the protections these ecosystems maintain have been weakened. The recent demand for year-round shoreland residences and access to rental properties and recreational facilities has resulted in a significant increase in shoreland development. While providing an economic advantage to some, these developments have the potential to escalate the long-term degradation of waterbodies beyond their physical and biological capacity.

Progress on this issue has occurred in some regions of Ontario, whether through updates to *Official Plans*, adjustments to Municipal zoning by-laws, and even the development of thorough Lake and River Management Plans. However, several studies have confirmed that substantial barriers to protecting these resources persist due to outdated policies, the presence of knowledge gaps, and an absence of specific skills amongst those who influence shoreland practices (Paterson, O'Donnell, Loomis, & Hom, 2010; Egan, 2014).

The issue of declining lake and river health has become a major concern for **Municipal Officials**, **Planners**, and **Lake & River Associations** in Ontario. Finding solutions to the complex issue of shoreland management begins with understanding the challenges experienced by these important shoreland influencers.

Supported by our Steering Committee, which includes veteran planners, distinguished Municipal professionals, and passionate environmental stewards, Watersheds Canada has recently distributed three surveys to Ontario's municipalities. These surveys were developed with the goal of collecting feedback from elected Municipal Officials, Planners, and Lake & River Associations to determine the most substantial barriers to facilitating and implementing sustainable shoreland development and land-use practices.

What follows is a report and analysis of the results from these Surveys. Using the feedback we collect, Watersheds Canada and our project Steering Committee will be well positioned to provide resources and skills to a diversity of stakeholders as they wade through the difficult waters of shoreland management and land-use.

METHODOLOGY

Sampling Effort and Representation

Once completed, links to each stakeholder survey were shared through Watersheds Canada's social media pages (e.g. Twitter and Facebook) and the Watersheds Canada e-newsletter. Survey links and information were also shared by regional partners, including FOCA, Cataraqui Conservation, and The Land Between. To supplement these efforts, the email addresses of more than 300 Planners and elected Officials in Ontario were compiled from municipal and regional websites (when available). These emails were used to disseminate survey links and other relevant information to potential participants. Each survey was open to responses for a period of ~2 months, resulting in a total of 189 responses from shoreland stakeholders in Ontario. This total included:

123 representatives from over 50 Lake & River Associations

Carson, Trout, Lepine, and Greenan Lakes

Olmstead-Jeffrey Lake Association

Paudash Lake Conservation Association

Dog and Cranberry Lakes Association

Friends of the Napanee River

Big Rideau Lake Association

Three Mile Lake Association

Bittern Lake Condo Board

Big Gull Lake

Canonto Lake Property Owners' Association

Horn Lake Cottagers' Association

Buck Lake

Eagle and Moose Lakes

Kushog Lake Property Owners' Association

Little Silver and Rainbow Lake Associations

West Devil Lake Property Owners' Association

Otty Lake Association

Charleston Lake Association

Battersea Loughborough Lake Association

North Tory Lake Homeowners' Association

Kennisis Lake Cottage Owners' Association

Cedar Lake Cottagers' Association (Highlands East)

Moon River Property Owners' Association

Lake of the Woods District Stewardship Association (LOWDSA)

Palmerston Lake Association

Opinicon Property Owners' Association

Wollaston Lake Home and Cottage Association

Crego Lake

Head Lake High Shores Association

Friends of Wilton Creek

Baptiste Lake Association

Picard Lake

Long Lake Stewardship

McKay Lake Cottagers' Association

Mary Lake Association

Gananoque River

Friends of the Salmon River

Black Lake Property Owners' Association

Mississippi Lake Association

Buckshot Lake Cottagers' Association

Kamaniskeg Lake Property Owners' Association

Mazinaw Lake Property Owners' Association

White Lake Property Owners' Association

Bass Lake

Salmon Lake Cottagers' Association

Malcolm and Ardoch Lakes Association

Desert Lake Property Owners' Association

Shabomeka Lake Association

Mountain Lake

Lovesick Lake Association

Hastings Highlands Interlake Association

Georgian Bay Association

23 Planners working with Conservation Authorities and Regional Municipalities

Township of Rideau Lakes

County of Haliburton

Simcoe County

County of Brant

Town of Whitby

Orillia

Township of Severn

Tiny Township

Rideau Valley Conservation Authority

Municipality of Temagami

District of Muskoka

Township of Minden Hills

South Frontenac

The Township of Drummond-North Elmsley

44 elected Municipal Officials from across Ontario

Brighton

Westport

Northern Bruce Peninsula

Manitoulin Island

Muskoka Lakes

Pelee Township

North Shore

Kincardine

Centre Hastings

Collingwood

Scugog

North Frontenac

Township of Augusta

Southwold Township

Montague

Dutton Dunwich

Township of Georgian Bay

Leeds and Thousand Islands

Municipality of Hilton

Central Huron

Sarnia

Essex County

Oakville-Halton

Tarbutt Township

Haliburton County

Durham Region

Geographic Representation

The geographical distribution of survey respondents was quite diverse. Regional density was highest in Municipalities surrounding Haliburton County, the District of Muskoka, and Frontenac County (southeastern Ontario). However, responses were also received from regions as far north as Manitoulin island, Temagami, and Lake of the Woods.



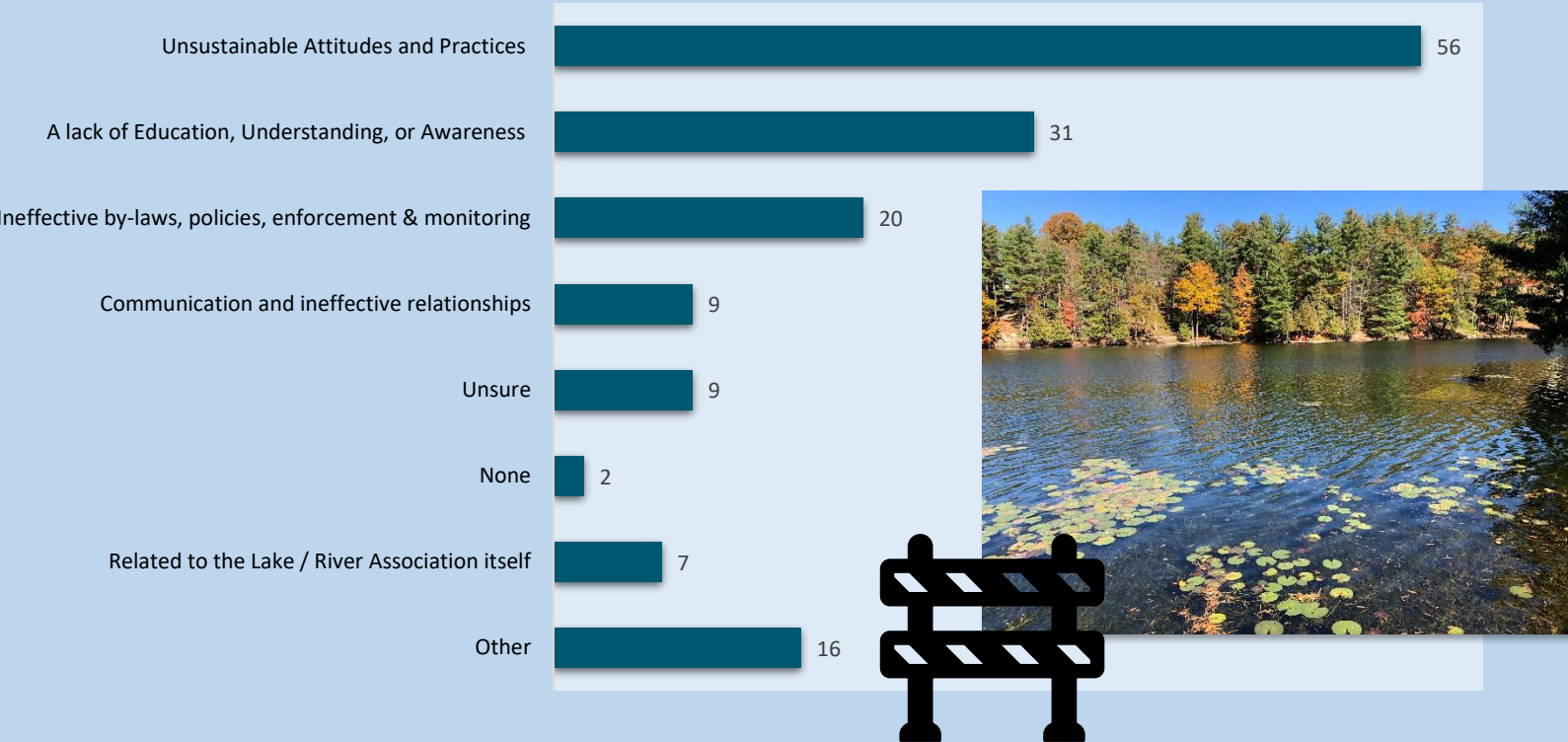
RESULTS - Lake & River Associations

Barriers to Shoreland Stewardship according to Lake & River Associations

Among the three stakeholder groups surveyed for this study, Lake & River Associations showed the highest level of participation, with 123 individual respondents representing over 50 associations.

Lake & River Associations are knowledgeable, grassroots environmental organizations operating on the frontline of shoreland stewardship and land-use in Ontario. Therefore, achieving significant participation from this group of stakeholders was of fundamental importance.

A key objective of each survey was to gauge the most persistent and significant barriers to stewardship and sustainable land-use being experienced by shoreland stakeholders. When asked what they considered the most significant barriers to encouraging and/or facilitating shoreland stewardship, respondents cited the following barriers:



Lake & River Associations made consistent reference to the barrier of ‘Unsustainable Attitudes and Practices’ (cited 56 times). Respondents believed that these unsustainable attitudes and subsequent practices occurred mostly on the part of waterfront property owners, but also on the part of elected Municipal Officials and, to a lesser extent, regional developers.

The barrier of unsustainable attitudes and practices was followed closely by an apparent “Lack of Education, Understanding and Awareness” on the part waterfront property owners and Municipal Officials (cited 31 times). The third most cited barrier was a perceived deficiency in Municipal shoreline ‘By-laws’, and ‘Policies’, as well as poor ‘Enforcement and Monitoring’ measures (cited 20 times)

Many respondents chose to elaborate on what they perceived to be the most significant barriers to shoreland stewardship around their respective waterbody. A sample of these elaborations are provided here:

'...Lack of understanding of the value of natural shorelands. New residents apply suburban land development and management mindset with them when developing waterfront land. Many people don't understand the concepts of ecosystem integrity and how their individual actions add to loss of habitat and stresses on riparian species...'

'...When we offer shoreline restoration and similar opportunities, many landowners refuse, often due to poor understanding of the benefits of the program. There seems to be a mindset that someone coming onto their land will "tell them what to do" and direct the program without consideration of the landowner's wishes...'

'...City and suburban mindset: some folks bring along their city property habits to their cottage (e.g. removing dead wood from forest floor, weed whacking and/or pulling out weeds - native plants, removing fallen trees/branches by the shoreline; feel the need to make things neat & tidy). Ecological Ignorance: few truly understand that everything is connected in nature, and the shoreline and buffer area plays a critical role in the health of the lake. Bittern Lake is small and therefore, particularly fragile. Some like to pull out shoreline and emergent plants to tidy things up and have a cleared shoreline and swimming area. Stone walls and/or sand are deemed desirable for some...'



'...Education, education, and education. Municipal government is pro-development. Some property owners oppose any form of regulation. "Back off government, this land is our land". Some believe what they do on the land does not impact the water. Did I mention education?'

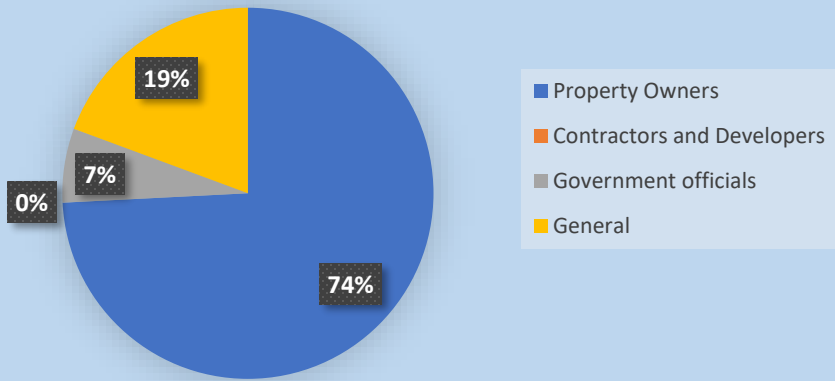
'...Awareness. Conflicting interests and lack of safe boating enforcement. Some property owners love to waterski, jet ski or tube on the water at speeds too high and too close to the shore. Cottage is for fun; shoreline is for taming, shoreline is for personal use and development; shoreline does not impact the lake in any way; general lack of shoreline management/control; no government agency appears to carry responsibility; lack of knowledge and awareness on part of most cottagers; need educational material/surveys to help Cottage Associations educate the Public; link shoreline management to boating behavior; control boat wakes; rated shoreline erosion, or they have clear cut their shore to put in lawn...'

'...Stewardship: Cost, lack of education, environment taking a back seat to economy. Channels of communication need to be improved. It is a challenge to reach property owners with the information they need to make good decisions. Traditional images, ideas and desires are difficult to change; such as the green lawn rolling right down to the water's edge as being the ideal landscape and wetland plants seen as unattractive and weed-like...'

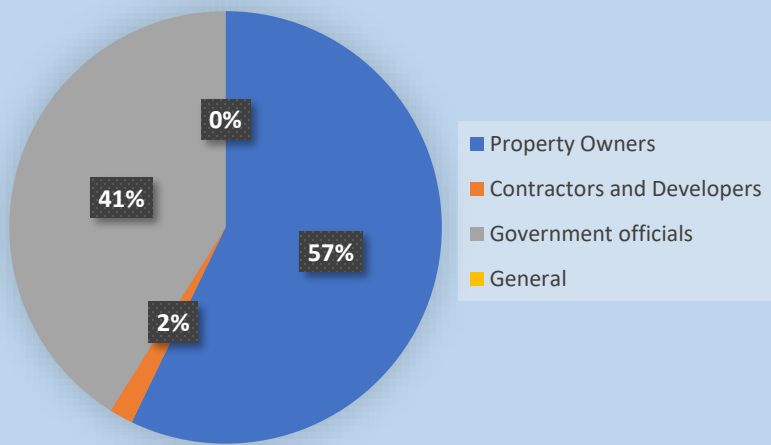
'...Apathy, apathy, and apathy[...] We need MNR to assess and declare the lake at or near capacity (we have the data) and to use this as a unifying tool to persuade municipalities to talk to each other and to act...'

As noted previously, Lake & River Associations placed considerable onus related to unsustainable values and practices on two major groups: i) waterfront property owners and ii) elected Officials (from both Provincial and Municipal governments). The following charts provide a comparison of how often property owners, government officials, and developers were cited in relation to what Lake & River Associations considered major barriers to shoreland stewardship. *Note: the 'General' category represents responses where no specific group was cited:*

Barrier: Stakeholders with insufficient 'Education, Knowledge and Understanding' of Shoreland Stewardship

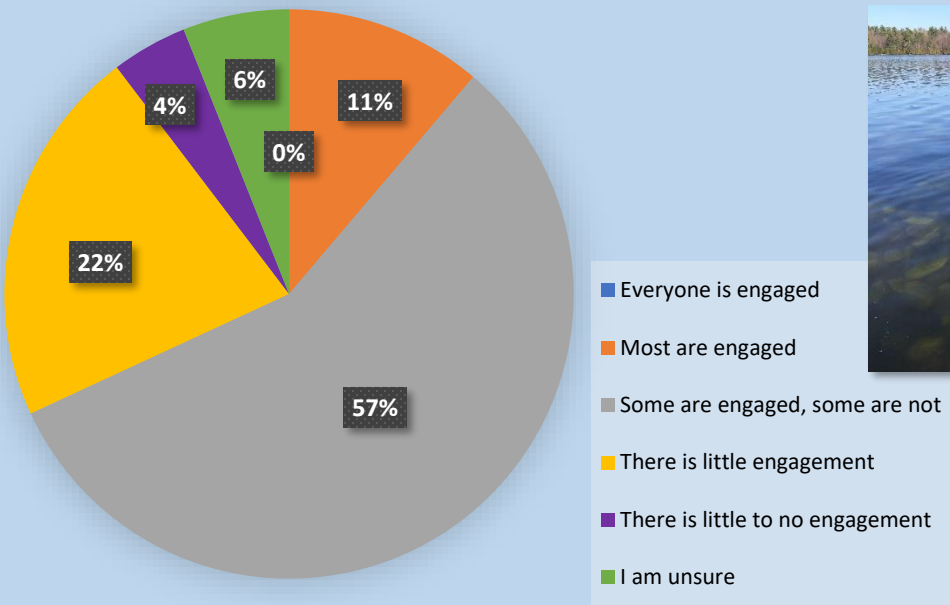


Barrier: Stakeholders exhibiting 'Unsustainable Shoreland Attitudes and Practices'



Of the 56 respondents who cited “Unsustainable Attitudes and Practices” as the most significant barrier to shoreland stewardship, 41% made direct reference to the attitudes and practices of elected government Officials, and 57% made reference to private property owners. Private property owners were also heavily associated with a perceived ‘Lack of Education, Understanding, and Awareness’ about shoreland stewardship, with 74% if respondents associating waterfront property owners with said lack of education, understanding, and awareness. Contractors and regional developers were also cited as possessing insufficient levels of education and understanding about shoreland sustainability, albeit to a much lesser extent relative to property owners and elected government Officials.

In addition to the reported unsustainable attitudes and lack of understanding among many shoreland stakeholders, Lake & River Associations also made reference to an average or otherwise below-average level of engagement in local stewardship activities among shoreland residents. This trend is illustrated in the chart below, which shows the distribution of responses to a question asking participants to describe how engaged lake or river residents were in stewardship activities around their waterbody:



Of the respondents who answered this question, none were of the opinion that “Everyone” was engaged in stewardship activities for their respective waterfront property. 26% of respondents indicated that there was either “Little engagement” (22%) or “Little to no engagement” (4%) from property owners, whereas 11% believed “Most were engaged” and 6% were “Unsure”. 57% cited an average level of engagement from property owners, where ‘Some [were] engaged’ and ‘Some [were] not’.

Several reasons were given for the perceived average or below-average level of engagement, and respondents were asked to elaborate and to provide any instances where their association experienced any ‘active resistance’ to efforts meant to promote or facilitate shoreland stewardship. A sample of these reasons and elaborations are provided below:

‘...Some residents do not like the idea of being told what they can or cannot do...’

‘...Since being involved with our lake association (past 2.5 years) we have not actively tried to promote stewardship. I have heard of blatant disregard for stewardship at the most basic levels; owners building too close to the shoreline causing them to be fined but not being required to relocate structures in question; a local farmer allowing animals access to the lake so that they can wade into drink when his well is dry; new residents removing all natural vegetation right up to their shoreline...’

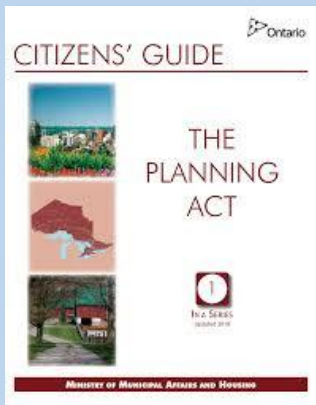
‘...There is a very high level of tension in general in the community. Last year we worked with Love Your Lake on shoreline assessments. My son [...] reported examples of hostile conversations from those on shore who very upset that we were doing this...’

'...Yes. This resistance has been in the form of defensiveness and disinterest. Those resisting want to be able to do as they please since they "own" their property...'

'...Yes, there is some opposition. Some view our efforts as dictating what can be done on their own property therefore, they are resistant to joining. Some folks just want to enjoy their property and be left alone. Some folks are resistant to changing or adapting their lifestyle. The area is highly politically conservative in their views and caring for the environment isn't always a priority. We installed a \$200 turtle crossing sign on a nearby road. It did not last two days before it was stolen...'

Lake & River Associations consistently cite a perceived infringement upon the rights of private property owners during promotion of implementation of stewardship activities, especially when the values and attitudes of these property owners conflict with those of environmental groups. Many respondents shared the belief that property owners were *'going to do what they were going to do'* regardless of the ramifications on the biological and physical well-being of their lake or river, and that any attempt to mitigate these attitudes and practices was perceived as an alienation of the rights. Ultimately, this is an issue of education, values, and attitudes which could be resolved with open dialogue to find collaborative solutions.

How Lake & River Associations perceive local Shoreland Policies and the need for Communication



In addition to general dissatisfaction with unsustainable attitudes and low levels of shoreland education, Lake & River Associations also displayed a significant degree of dissatisfaction with the shoreland by-laws, policies, regulations, and enforcement measures of their local municipality. When asked to rank the shoreland zoning by-laws and planning policies of their region on a scale of 1 (Very poor) to 10 (Excellent), the average score was calculated as 5.11, illustrating that respondents certainly saw room for substantial improvement in relation to these regulations.

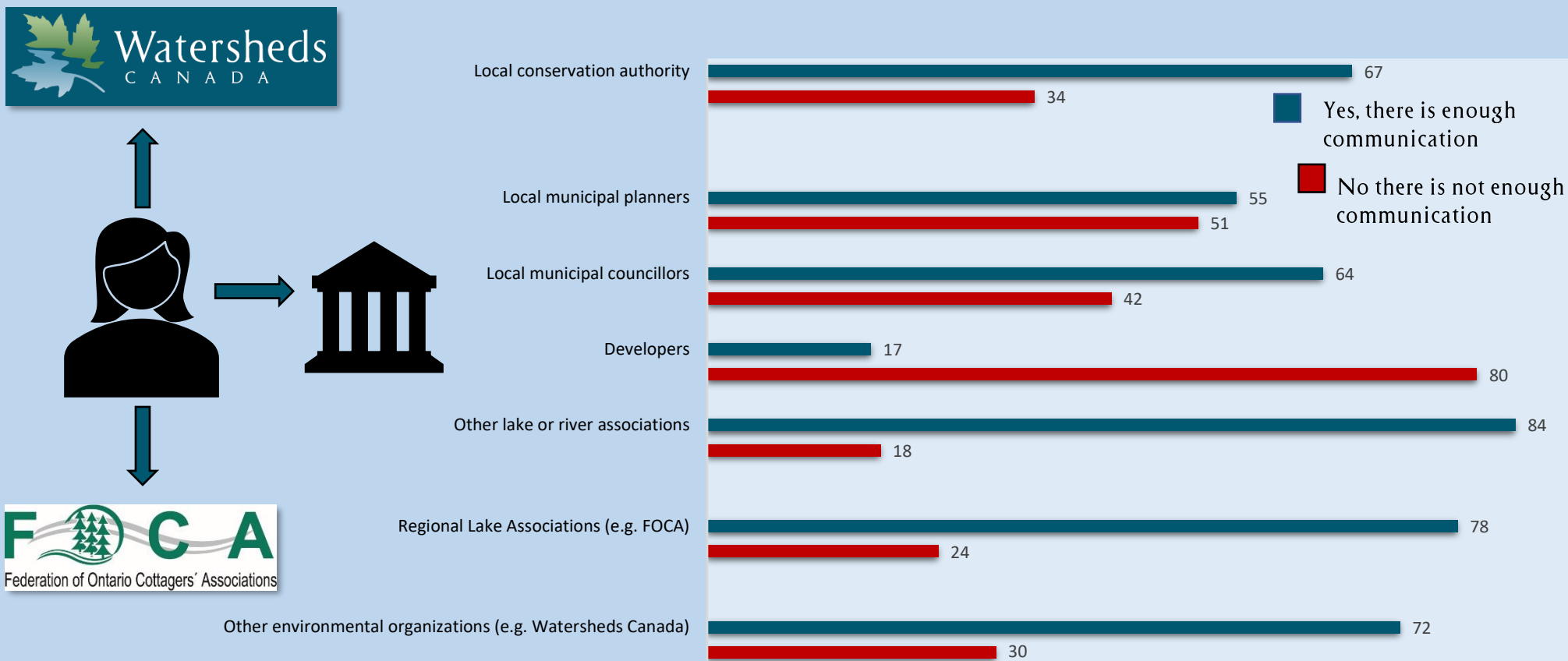
5.11

Additionally, when asked to rate the enforcement of these by-laws and policies on the same scale, the average score was 4.14, suggesting a rather low level of satisfaction with how the aforementioned shoreland regulations were being enforced and/or monitored *on the ground*.

4.14



Healthy levels of communication are a critical aspect of shoreland stewardship, especially in the presence of multiple stakeholders with different values, attitudes, and levels of knowledge. Lake & River Association members were asked if they believed there was enough communication between their association and seven other key stakeholder groups: 1) the local Conservation Authority, 2) local Municipal Planners, 3) local Municipal Councillors, 4) developers, 5) other Lake or River Associations, 6) regional Lake Associations (e.g. FOCA), and 7) other environmental organizations. The results are shown in the following figure:

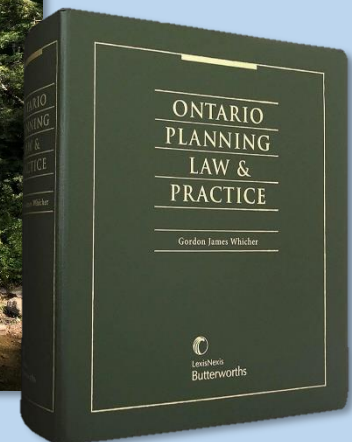


Most respondents cited a strong level of communication between their own association and that of others in Ontario, including regional associations such as FOCA. Communication was also positive between associations and the local Conservation Authority and other environmental organizations. Communication with members of Municipal Council and Planners was average, with approximately half of the respondents believing there was enough communication between their association and municipal officials and staff. Communication was thought to be quite poor between most associations and local developers, signifying a potential gap in networking between environmental groups and contractors who rely on shoreland development to support their businesses.

The responses given above regarding communication with various groups seem to be confirmed by the responses to the following question, in which respondents were asked to rank five statements on of a scale of 1 (Strongly disagree) to 5 (Strongly agree):



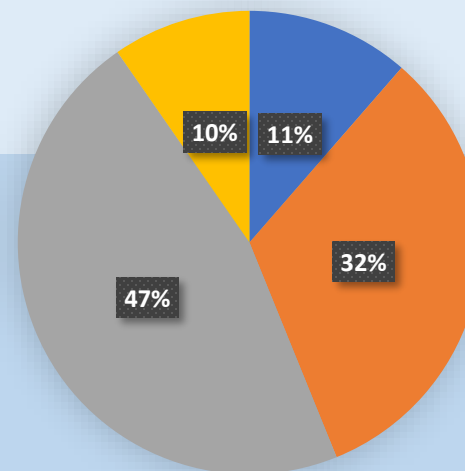
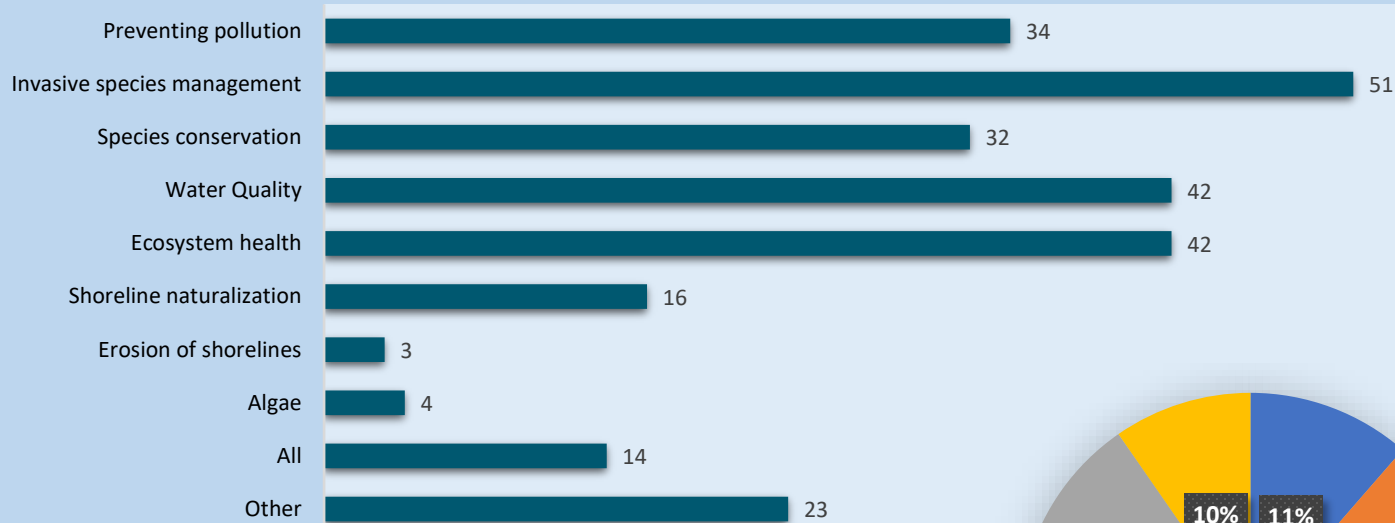
From the results shown in the figure above, it would seem many Lake & River Associations agree that their association knows how to weigh in on the processes that occur at the municipal level. However, there is an observable decrease in confidence among these associations as to whether or not their concerns are being duly considered by municipal officials, and whether progress is being made in having shoreland stewardship concerns heard by municipal policy-makers.



Issues of Shoreland Ecology: *Pollution, Water Quality, & Invasive Species*

In addition to what one might consider the 'social' concerns of Lake & River Association members, one must also consider what this stakeholder group considers the most prominent physical or environmental issues facing the shorelands of their lake or river. This is especially important to consider given that 57% of respondents believed that their lake or river was either 'approaching capacity' (i.e. approaching a detrimental level of development and nutrient loading, beyond which would cause significant biological harm) (47%) or already 'overdeveloped and/or beyond capacity' (10%), while only 11% reported that their lake was 'untouched' with minimal development (see chart below). 32% of respondents noted that their lake or river was experiencing increased levels of 'development in recent years'.

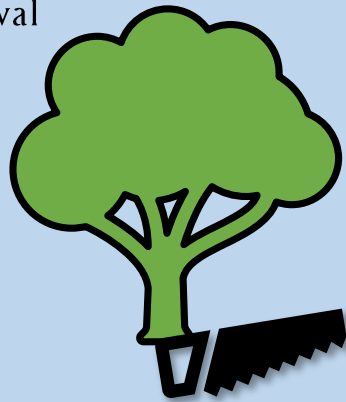
The question of significant environmental and conservation issues was expanded upon to include those issues of most importance to the association specifically. 'Invasive species management' was the most cited concern (51), followed closely by 'Water quality' (42), 'Ecosystem health' (42), 'Preventing pollution' (34), and 'Species conservation' (32), respectively. Many 'Other' environmental concerns were listed, including the effect of engine-powered boats on shoreline habitats, the removal of native trees and shrubs, rising water levels and seasonal flooding, the impact of septic run-off, and the preservation of wetland habitats.



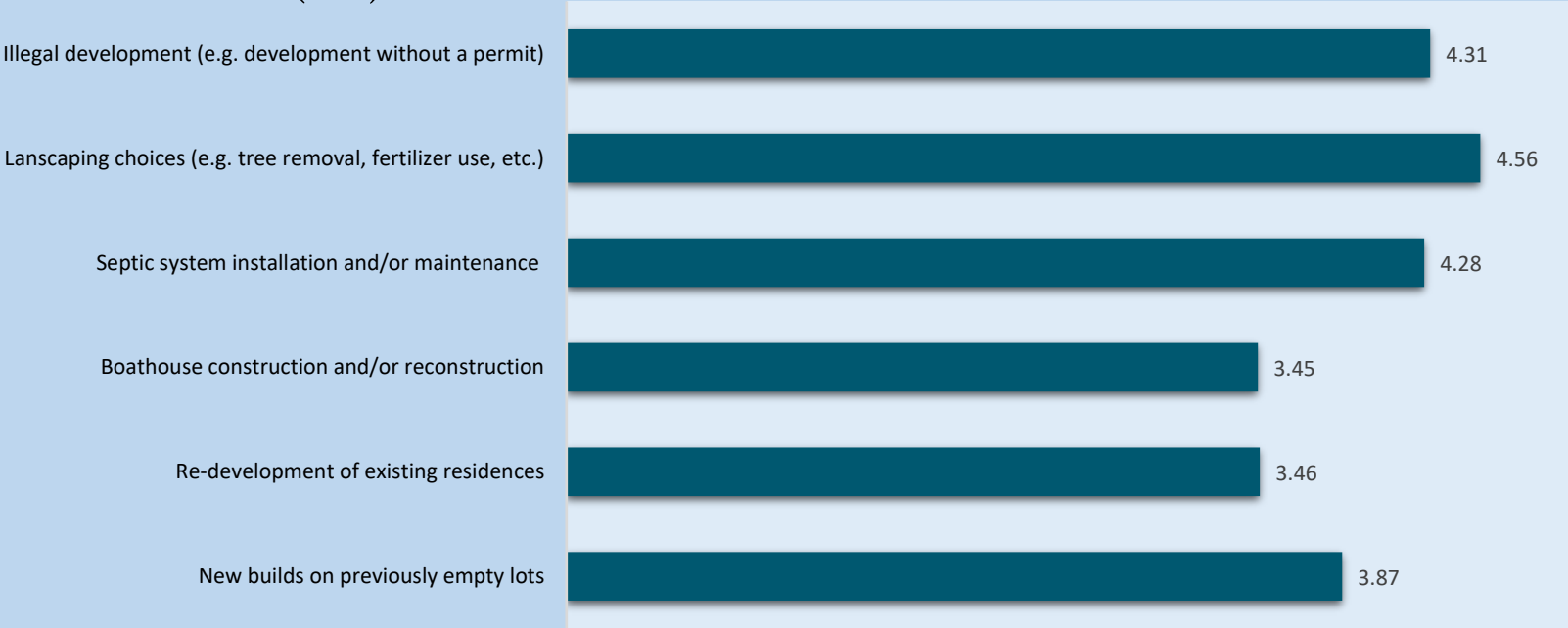
- My Lake environment is relatively untouched and/or development is minimal
- My Lake is getting busier due to some development in recent years
- My Lake is at, or approaching, capacity and cannot bear much more development
- My Lake is already overdeveloped and/or beyond capacity

23 'Other' major environmental and/or conservation concerns were cited, including:

- 1) Rising water levels and seasonal flooding
- 2) Increased boat traffic causing shore erosion
- 3) Tree removal
- 4) Wetland preservation
- 5) Light pollution



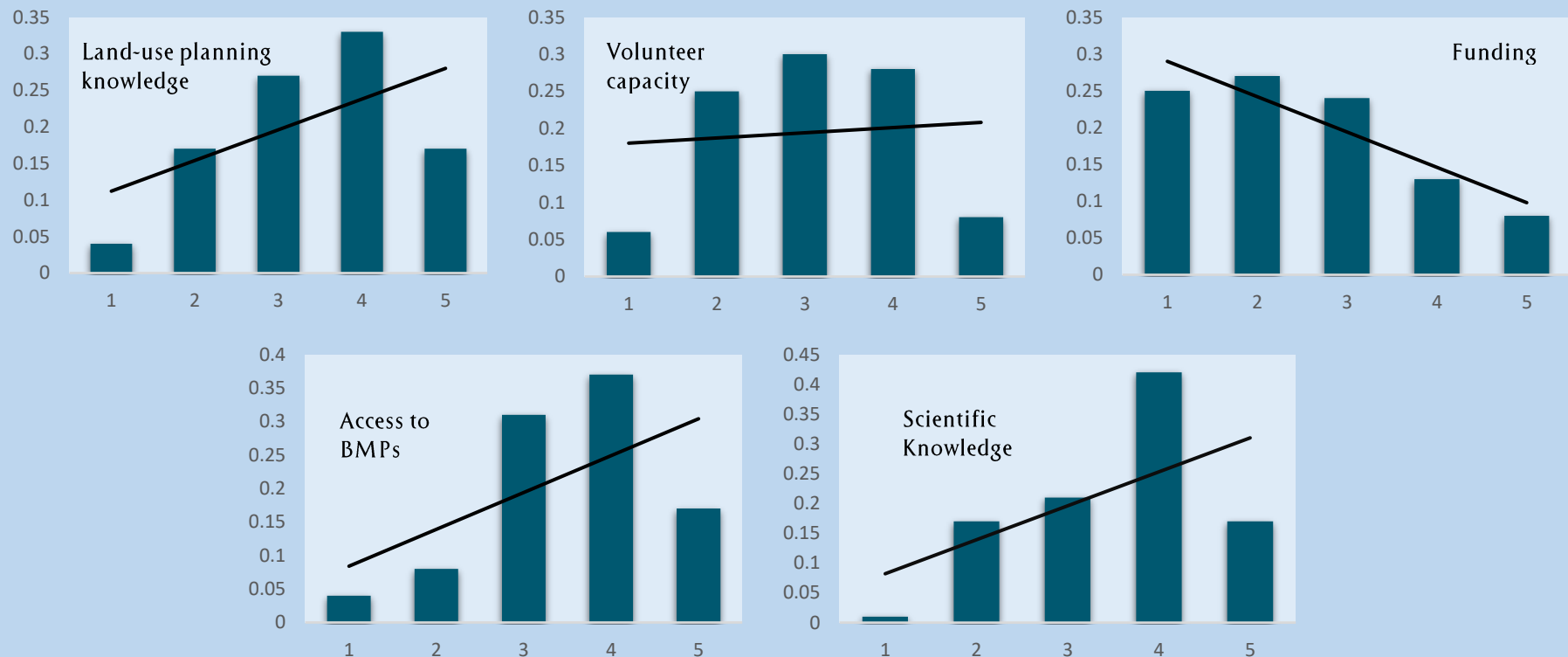
What might be causing the degradation of environmental quality around lakes and rivers? Respondents were asked to rank the following factors in terms of their impact on their lake or river shoreland environments on a scale of 1 (Not impactful) to 5 (Highly impactful). Landscaping choices, including the addition of fertilizer and removal of vegetation (and thus habitat) was listed as the most impactful on the environment (impact rating of 4.56), followed closely by illegal developments (impact rating of 4.31) and septic system installation and maintenance (4.28).



Solving Shoreland Issues: *Collaboration and the needs of Lake & River Associations*

Lake & River Associations are highly motivated when it comes to mitigating issues which affect shoreland health and sustainability. But what about their organizational resources? That is, do Lake & River Associations maintain the necessary capacity to tackle complex shoreland issues?

Respondents were asked to rate their association in terms of its capacity and knowledge within 5 key areas: a) Land-use planning, b) Volunteer capacity, c) Funding, d) Access to available Best-management Practices (BMPs), and e) Scientific knowledge.

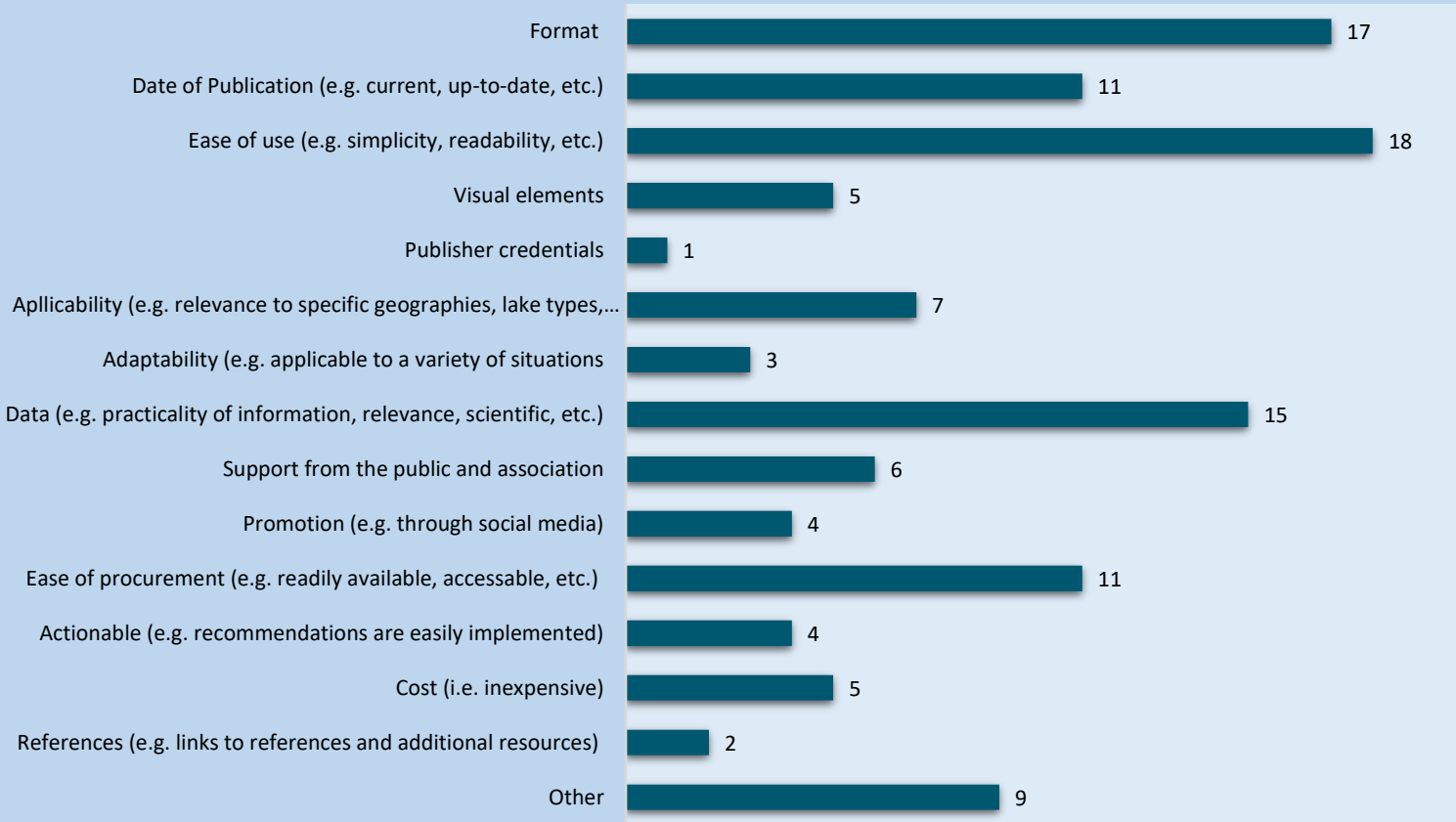
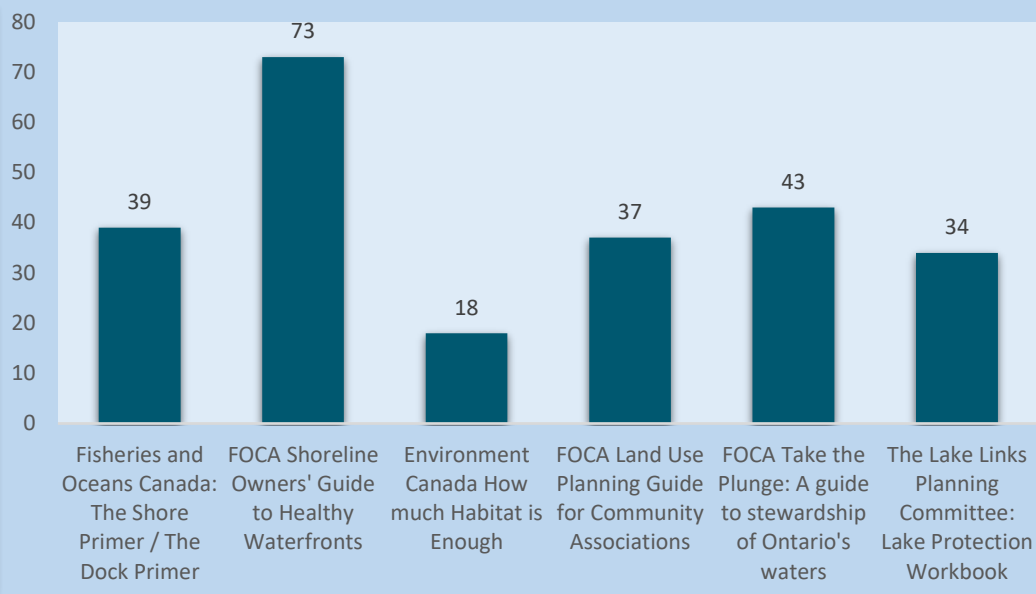
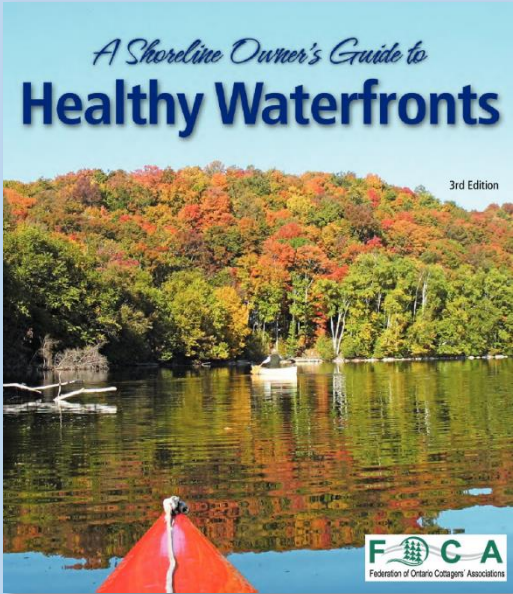


The trendlines in each figure illustrate average level of confidence within each respective category. Positive trendlines indicate a greater level of confidence, increasing with slope. The opposite is true for negative trendlines: the steeper the negative slope, the less confidence in the respective area. With this in mind, one can observe a relatively high level of confidence in the areas of land-use planning knowledge, access to BMPs, and scientific knowledge. An average level of confidence was reported in the area of volunteer capacity (trending towards positive) while a rather low level of confidence was reported in terms of funding for shoreland stewardship projects (indicated by the observable negative slope). These results suggest a great capacity on the part of associations in terms of knowledge about shoreland science and policy, but less so in terms of what one might consider 'tangible capacities' (i.e. available volunteers and funds).

In addition to the capacity of Lake & River Associations to influence or enhance shoreland stewardship, we can also analyze the relative *willingness* of these associations to use BMPs effectively and to participate in projects meant to enhance stewardship around their respective waterbody.

Respondents noted extensive use of existing BMP resources for shoreland stewardship and land-use, most notably those provided by the Federation on Ontario Cottagers' Association (FOCA), including the *Shoreline Owners' Guide to Healthy Waterfronts*, which was cited by 73 participants.

When asked what factors most influence the use of a BMP resource, 'Ease of use' (i.e. simplicity) was the most oft cited factor (18), followed closely by 'Format' (e.g. availability of physical and electronic forms) (17), the 'Data' contained in the document (e.g. is the data informed by science) (15) and 'Date of publication' (11).



Additional comments related to the use of BMP resources for shoreland stewardship and land-use are provided here:

‘...Material distributed to members needs to be simple, concise, practical, and clearly state the benefits of using best practices for shoreline development or rehabilitation...’

‘...Success stories with details from other Lake Associations of similar lake conditions [...] confirmed facts / data from FOCA & CHA...’

‘...Succinct, engaging, action oriented. Equipped with a measurable tool or process to see the benefits of the restoration or protection plan. Available in BOTH a handbook format and an interactive web version. But use eco-friendly paper and printing and mention this as majority of millennials are very sensitive to wasteful printing. Include a couple of very relatable "before and after" examples of how valuable shoreline restoration & protection is to the property owner...’

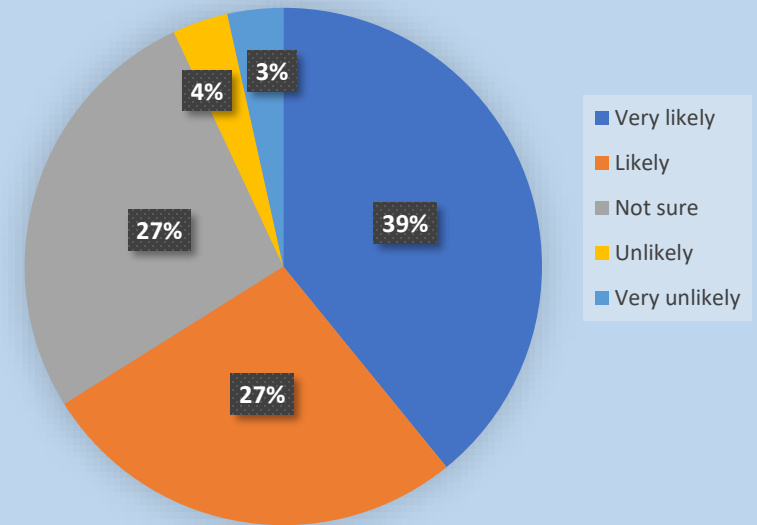
‘...I would love to plant some natural species around the appropriate part of our shoreline...but where would I get them? (I have already tried to "reforest" a large area of our property that the previous owners cleared for lawn and vegetable gardens and the view, but the only way I can afford this is to "steal" trees from the roadside, which is nerve-wracking and tiring. Would love if the MNR had a "shoreline" package of shrubs at a reasonable price I could purchase for 10', 20' etc....’



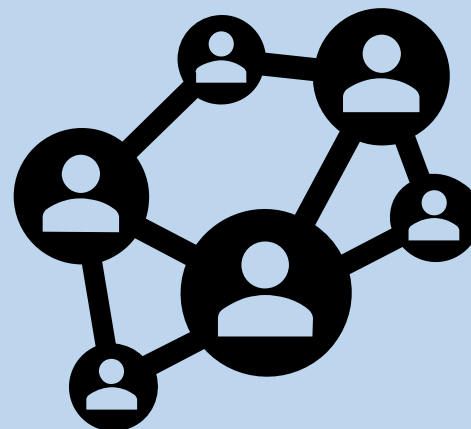
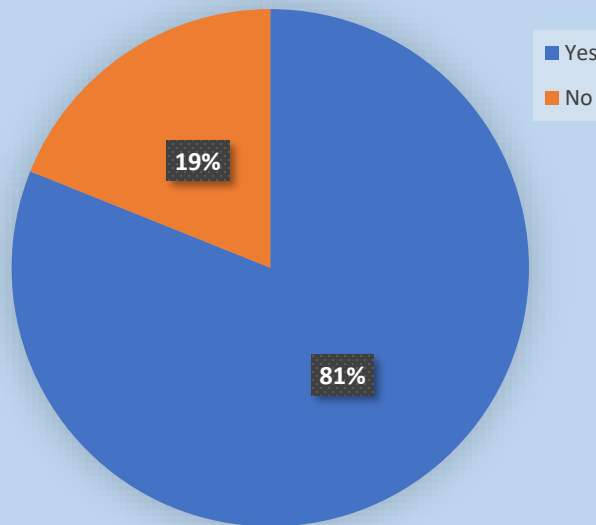
‘...Educating people to be pro-active versus reactive. Most politicians and a significant number of cottage owners wait until its to late to correct the problem. Eurasian milfoil is a perfect example. YouTube Best Practices videos would be an effective tool...’

‘...There is an old notion that people have little interest or ability to understand lake management issues. This leads to publications that are too simplistic or too generalized. Most shoreline inhabitants are intelligent and well educated. Hard data probably has greater value than generalized statements. The best guides would be ones that teach you to work with what you have. Offering more choice in decisions also works. E.G. Does every dead tree on your property need to be removed? What benefit do dead trees have in the system? Does every tree that falls into a lake need to be cleared away? Why is there so much leaf litter collected off properties each Fall? and so on... Length of publication would not be a problem, but it would get expensive. PDF driven materials makes length less important. Why not a structure that people would print themselves- perhaps summation sheets could be printed for dissemination...’

In addition to the use of BMPs, respondents also seemed quite open to the idea of participating in a '*shoreland network*', that is, participation in an online forum where stakeholders share experiences and best-practices regarding shoreland land-use and stewardship. 66% responded that their association members would be 'Very likely' (39%) or 'Likely' (27%) to participate in this type of information-sharing network, and only 7% stated that participation would be 'Unlikely' (4%) or 'Very unlikely' (3%) from their respective association.



Respondents also expressed their interest in receiving updates on future shoreland stewardship initiatives, with 90 respondents (81%) agreeing to be added to Watersheds Canada's contact list for distribution of monthly e-newsletters and project updates.



SUMMARY AND DISCUSSION

Key Findings

Three significant barriers to influencing and promoting shoreland stewardship were alluded to by Lake & River Associations:

- 1) Unsustainable attitudes and practices related to shoreland development and land-use
- 2) Insufficient levels of education and subsequent understanding of the value of natural shorelands
- 3) Ineffective shoreland by-laws and policies; poor levels of enforcement and monitoring

Waterfront property owners and elected Municipal Officials were referenced as the stakeholder groups who required directed education efforts related to shoreland sustainability. Actions on the part of property owners included: a lack of engagement with the local lake or river association, removal of native vegetation, and unfettered property development. The prevailing attitude of *'it's my property, I can do what I like with it'* was of considerable concern.

Lake & River Associations were generally unsatisfied with the effectiveness of Municipal shoreland by-laws and policies, and quite displeased with the lack of enforcement and monitoring that occurred on shorelands.

Communication was strong between different Lake & River Associations, with Conservation Authorities, and other environmental organizations. However, communication with Municipal Officials and Planners was average, and communication with land developers was quite poor. Lake & River Associations felt that they were making little progress in protecting their shorelands due to these overarching factors, and that their opinions were not often considered by local Officials.

The perceived physical or biological health of their lake and river environments was quite poor, with the majority of respondents stating that their lake or river was either at or nearing biological capacity, with levels of development increasing. Environmental concerns were quite diverse, with invasive species management, water quality, and overall ecosystem health being the predominant concerns. Negative environmental impacts were thought to arise from illegal or unsustainable development choices by property owners, especially the removal of vegetation around shorelines which provide habitat and mitigate pollution.

Association capacity was generally quite positive in relation to land-use planning knowledge, scientific knowledge, and access to best-practices and resource materials. Volunteer capacity was average (corroborating the reference to poor engagement), and funding capacity was poor. A diversity of BMP resources are being used by Lake & River Associations. Ease of use and procurement, format, simplicity, and good scientific data were all key determinants of use for BMP resources among respondents.

Respondents seemed eager to participate in networking opportunities with other shoreland stakeholders, with a majority willing to receive updates on future shoreland stewardship initiatives and project updates from Watersheds Canada.

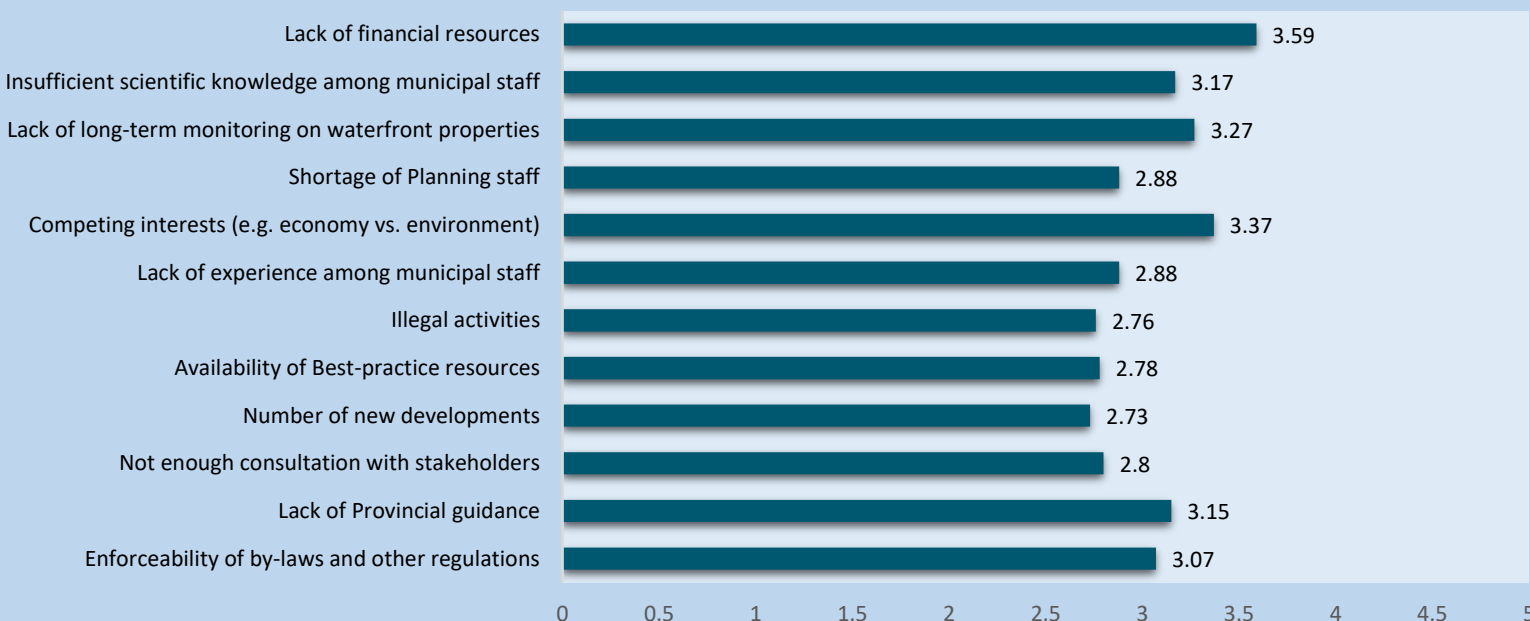
RESULTS - Municipal Officials

Barriers to Shoreland Stewardship according to **Municipal Officials**

Municipal Officials (i.e. elected Mayors, Councillors, Reeves, etc.) are the key decision-making authorities in Ontario's waterfront communities and are responsible for representing the interests of their local constituents. 44 Municipal Officials responded to our *Survey for Municipal Councillors*, contributing essential regional perspectives on the state of shoreland policy and land-use in Ontario.

Similar to our survey for Lake & River Associations, a fundamental objective of this survey was to gauge what respondents considered the most persistent and significant barriers to stewardship and sustainable land-use in their region.

Municipal Officials were asked to rate listed barriers on a scale of 1 (Minimal) to 5 (Significant) as they related to balancing shoreland stewardship and development in their region:



On average, Municipal Officials cited a 'Lack of financial resources' as the most significant barrier relative to the other choices provided (rating of 3.59). This was followed by the persistence of 'Competing interests' (example Financial *bottom lines* vs. the conservation of nature) (rating of 3.37) and a 'Lack of long-term monitoring' on shoreland properties (rating of 3.27)

There seemed to be a limited degree of consensus as to what constituted the *most* significant barrier to balancing stewardship and development. This is illustrated by the abundance of values falling within a median between 1 and 5 (i.e. a range of 2.25 - 2.75). More simply, none of the barriers met or exceeded an average rating of 4, or what we would consider the 80th percentile.

When asked if they would provide any additional barriers that were not listed during the survey, Municipal Officials provided various responses:

'...Special pleading by private groups for exclusive access to public waterfront...'

'...The provincial structure of land use planning and appeals...'

'...MECP appear to gloss over applications from Developers, not taking the Environmental concerns seriously...'

'...Conservation Authority role being minimized with Bill 229...'

'...The province sets the tone, but funding support or lack of support is the first major problem...'

'...Although the number of observed illegal activities observed are very low each year, it is recognized that there are insufficient Federal and Provincial inspectors around to act as a deterrent and to catch violations. They are known to be spread out in the Province with little possibility of having a regular presence at any one location...'

'...environmentalists who go to far to stop any development even though studies confirm compliance...'

'... Yes, the often very tight timelines for submission of Federal-Provincial grants/loans with a limited staff especially for municipalities under 30 000 population...'

'...Funding. The Lake Scugog Enhancement Project is gaining momentum and financial support as background work for the ambitious Port Perry waterfront initiative continues...'

'... The Ontario Government's willingness to fast track development and hence the economy by loosening restrictions and consultation. We are presently battling the location of a new quarry with very little political support...'

'...Reports generated for, paid for by property owners, have been a challenge as lacking important information. Staff who can only accept these reports as is are challenged to defend or opposed these reports. A lack of trust of these biologists reporting is growing concern...'

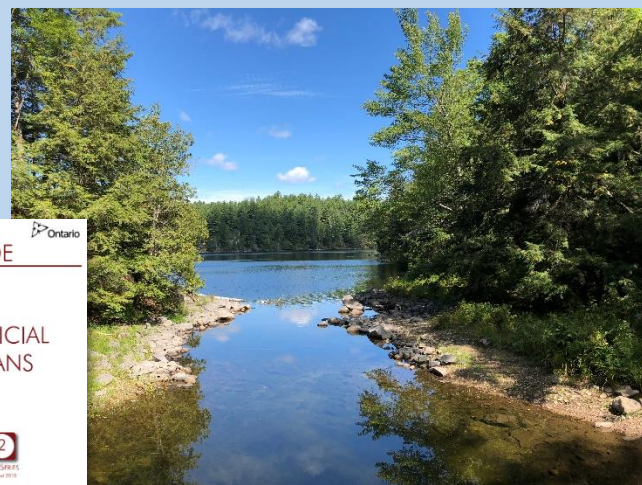
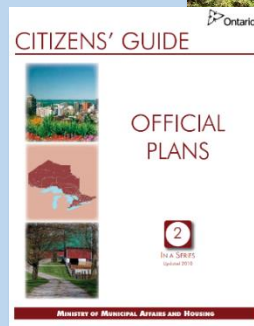
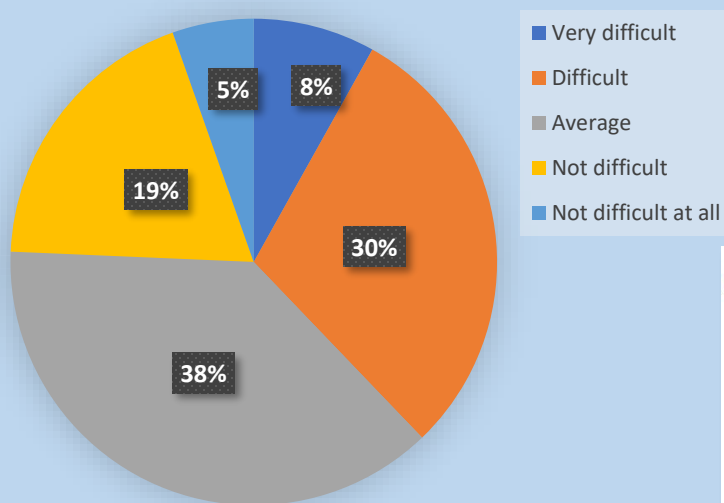
'...Downloading to municipalities (e.g. administration and implementation of source protection) makes it difficult to balance environmental priorities within municipal budgets to ensure that municipalities are able to balance those environmental and economic priorities...'

From these responses, Municipal Officials appear to perceive a lack of support, guidance, and direction from the Provincial government as a major barrier, citing difficulties in balancing environmental concern with budget and development pressures in the absence of said direction.



Shoreland Issues: *Municipal Policy, Balance, and Preserving Nature*

In describing how difficult it was to ensure the shoreland stewardship goals laid out in their *Official Plans* were implemented and/or upheld, the majority of Municipal Officials (38%) stated that their situation was little different from that in other municipalities (i.e. of average difficulty). However, 30% of Municipal Officials believed that it had been 'Difficult' ensure implementation of the shoreland stewardship goals outlined in their *Official Plan*, while only 19% stated that it was not difficult. As outliers, 8% of Officials reported a 'Very difficult' time implementing shoreland goals, and 5% reported it being 'Not difficult at all'.



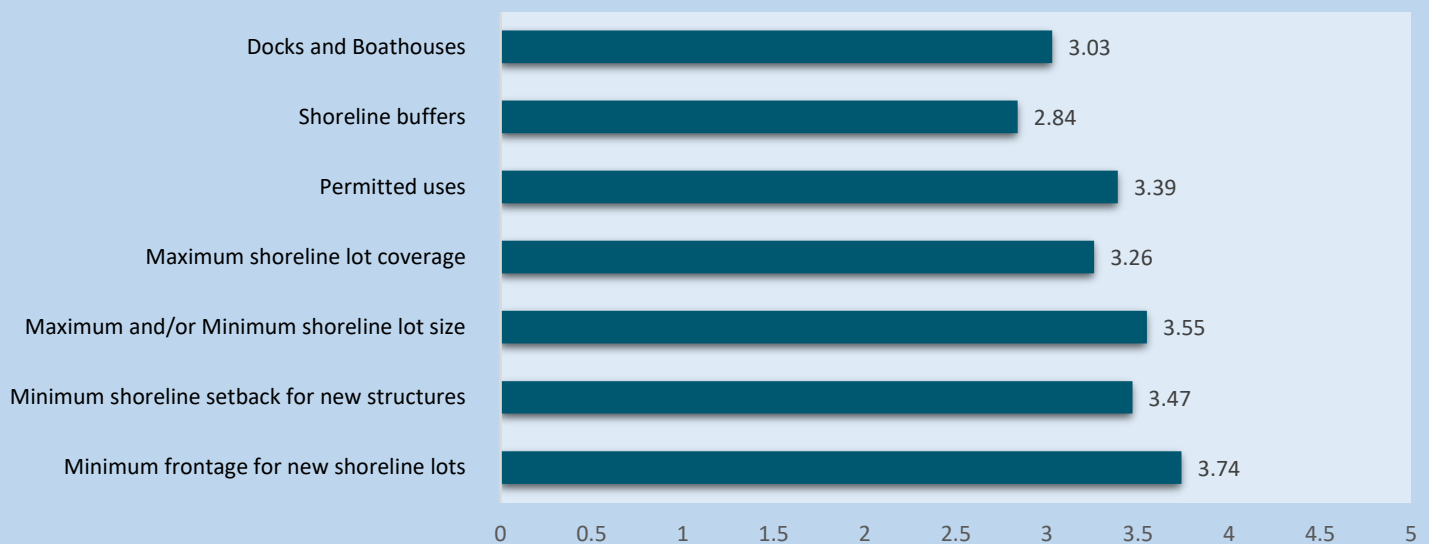
Aside from the reported difficulties associated with implementing shoreland stewardship goals, Municipal Councillors also (on average) expressed mediocre opinions about the coverage of shoreland stewardship within their respective *Official Plans* and zoning by-laws.

When asked to rate their Municipality's coverage of shoreland stewardship in zoning By-laws and Official Plans, Municipal Councillors, on average, found it to be not very good. On a scale of 1 (Not comprehensive) to 10 (Comprehensive) the average score was 5.95.



The same Officials, however, seemed to have a higher regard for the *effectiveness* of the policies that were in place.

This is illustrated in the figure below, which shows average reported satisfaction ratings on a scale of 1 (Dissatisfied) to 5 (Satisfied) for listed elements of Municipal zoning standards and land-use policies and practices:



On average, Municipal Officials seemed reasonably satisfied with several key elements of their Municipality's by-laws and land-use practices as they relate to shoreland land-use. This is especially true of 'Minimum frontage standard for waterfront lots' (satisfaction rating of 3.74), 'Maximum and/or minimum shoreline lot sizes' (satisfaction rating of 3.55), and 'Minimum setbacks for new structures' (satisfaction rating of 3.47).

When asked to elaborate on why they reported their respective levels of satisfaction with these elements, several Municipal Officials cited recent or upcoming overhauls or amendments to their zoning by-laws and *Official Plans* which ultimately strengthen shoreland stewardship practices in their region. However, many conceded that more could be done to strengthen the effectiveness of municipal policies and practices:

'...Our zoning bylaws are to be updated within the next couple of years. In review of the current zoning bylaws, we feel they are, for the most part, very good documents...'

'...out of date - zoning bylaw hasn't been updated since 2002, there have been several attempts (such as last term 2014-18), but too many changes at once, poor public engagement caused community to uproar & conflict & rise of divisive advocacy group, and ultimately changes didn't get passed...'

'...We could always do better. The number of variances because people want bigger, better, is shocking. LPAT has total disregard no matter what policies of protection are put in place. The wealthy just sue and win. When will the province be on side with municipalities and our watershed...'

'...it seems to me that we have gone from one extreme to another from little or no control to too much control...'

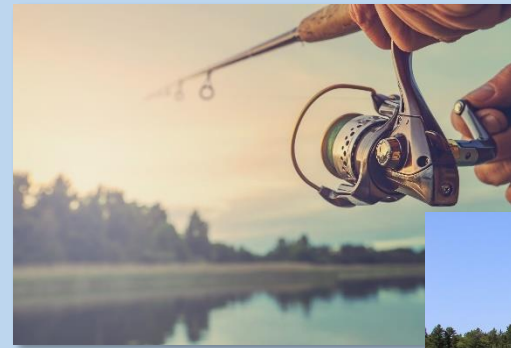
'...Since the municipality has so much development along the Trent River, we have done a lot of work to look at these requirements and to create policies and by-laws pertaining to existing development and in incorporating the requirements into new development...'

'...We have placed in our new Official Plan strong restrictions on any development on hazardous lands which include shorelines. Any development would need multiple agency approval...'

'...they have been modernized and are efficient and effective...'

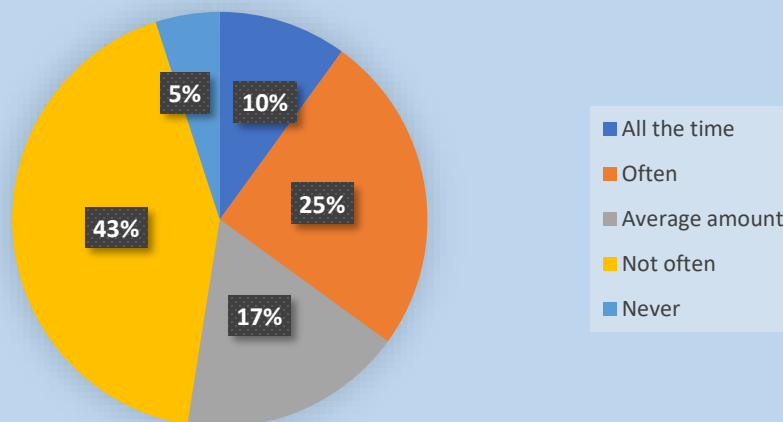
As elected representatives, it was important to gauge how Municipal Officials perceived the opinions and needs of their constituents as they related to shoreland stewardship and land-use.

This is especially important given the fact that, when asked how important lake and river activities were to their local economy on a scale of 1 (Not important at all) to 10 (Very important), Municipal Officials reported an average score of 8.17, indicating a high level of economic importance associated with freshwater activities (e.g. fishing, eco-tourism, boating, etc.)

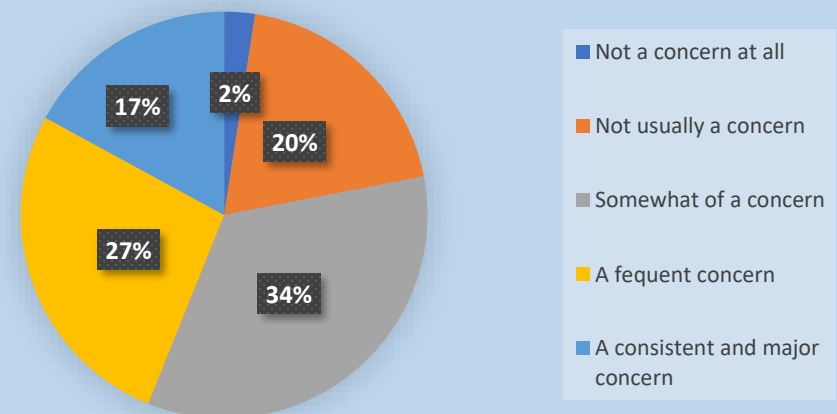


Municipal Officials reported that sustainable land-use planning and shoreland stewardship was a considerable concern among their constituents, with 44% reporting that shoreland stewardship was a 'Frequent' (27%) or 'Consistent and major concern' (17%) among their constituents. It is also worth noting that illegal shoreland development seemed to be an occurrence in only some of the municipalities surveyed, with 35% of Municipal Officials reporting that unpermitted or unregulated development occurred 'Often' (25%) or 'All of the time' (10%) in their region and 48% reporting that said illegal development either 'Never' happened (5%) or otherwise did 'Not often' occur (43%)

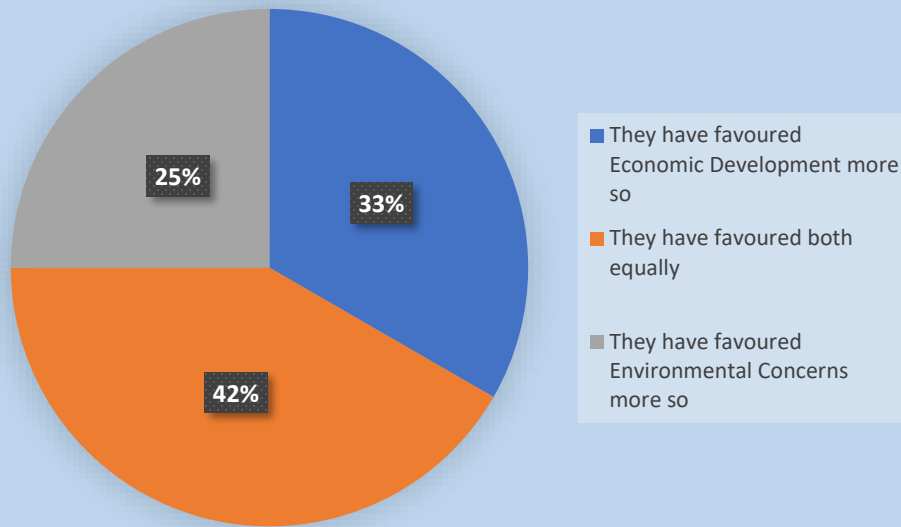
How often does illegal activity occur on local shorelands?



How much of a concern is shoreland stewardship among your constituents?



Additional questions were asked concerning development and land-use decisions being made in each respondents' respective region. Perhaps in recognition of attempts to achieve a 'balance' between economic and environmental concerns, most Municipal Officials (42%) reported that practices and policies in their municipality had favoured environmental concern and economic concern equally, followed closely by those who felt they had favoured economic development (33%) and environmental concerns (25%).



Based on the additional comments Municipal Officials provided for this question, it seems that achieving a balance between economic development and environmental stewardship is a major objective of municipal governments:

'...Balance is critical. Without Economic Growth-you do not get the required resources to support community programs. water -related programs are expensive. To address our current waterfront infrastructure we are looking at 10 million dollars...'

'... We recognize that we still have a prevalence of natural shoreline areas that we want to protect but also areas that have developed historically where we can work to enhance natural features and new development where features have been protected but where development has been approved in an appropriate form...'

'... We have targeted development zones for building and prevented environmentally sensitive areas from development...'

'...Historical use of the watershed has been for fishing and agriculture. Our populations are small but are increasing due to southern urban interest. Our neighbouring First Nation has taken some lead cultural changes to promote the land and water...'

Interestingly, respondents who believed that development concerns were favoured more so than those of the environment often attached a negative connotation to their response. For example:

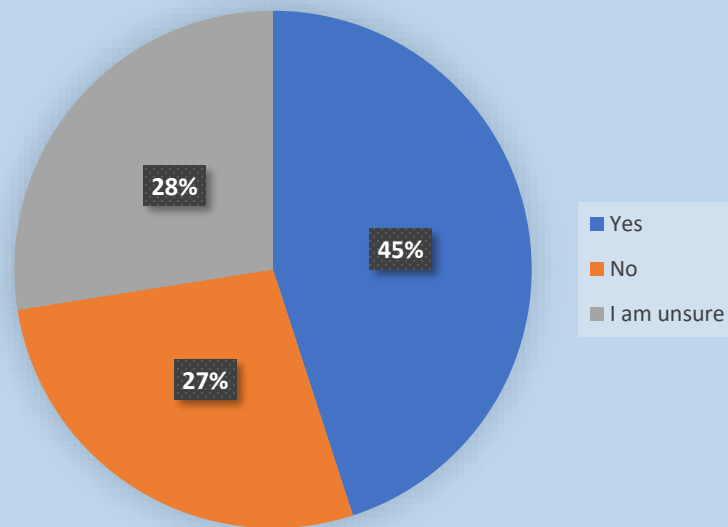
‘...pressure from people to do whatever they want whenever they want however, they want...’

‘... the power exerted by large, financially superior entities who "out lawyer" a small municipality like ours...’

‘...Lack of leadership & staff capacity - development pressure is significant & municipality sees it as positive due to increased assessment - belief that no short-term financial benefit to prioritizing environment...’

Based on these responses, it would seem that situations in which development pressure has predominated over environmental concern are viewed in a rather negative light by Municipal Officials, suggesting that these Officials wish to avoid situations wherein development occurs at the expense of conservation. This might imply a greater environmental *mindedness* among Municipal Officials than previously implied by results from the Lake & River Association surveys.

Municipal officials were also asked if they believed that the values of their constituents (e.g. shoreland property owners, developers, and Planners) were at odds with the Natural Heritage components of their By-laws and Official Plans.



As shown in the chart above, 45% of respondents believed that the Natural-Heritage objectives in their respective by-laws and *Official Plans* were at odds with the desires of their aforementioned constituents, while only 27% believed that they were not. When asked to elaborate, Municipal Officials provided responses exhibiting considerable consensus: that Natural-Heritage objectives were viewed negatively by *some* private property owners and developers, but not by Planners:

‘...Not with the planners, but definitely with developers and some property owners...’

‘...with developers who's only concern is with the profit margin...’

‘...All stakeholders have a different vision of what they see for our community. There is no one viewpoint...’

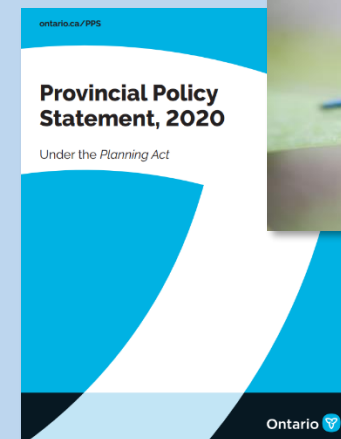
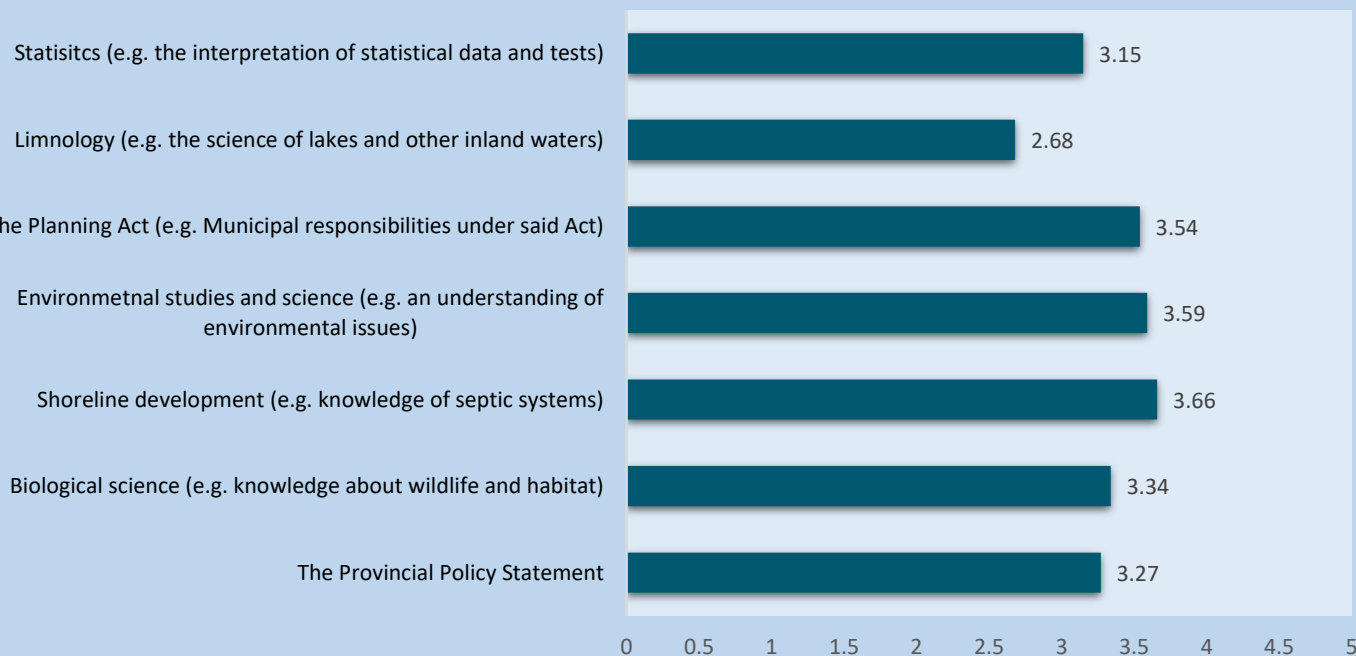
‘... pressure from people to do whatever they want whenever they want however, they want AND they have money and the ear of the province...’

‘...Of property owners for sure. All they want is a big house with a great view of the lake...’

These responses mirror many of the concerns exhibited by Lake & River associations, namely that, by and large, private property owners and developers lack the education, values, and skills necessary for shoreland stewardship. The attitude of *‘Its my property, I can do what I want with it’* seems to be a significant and well-recognized issue across major stakeholder groups.

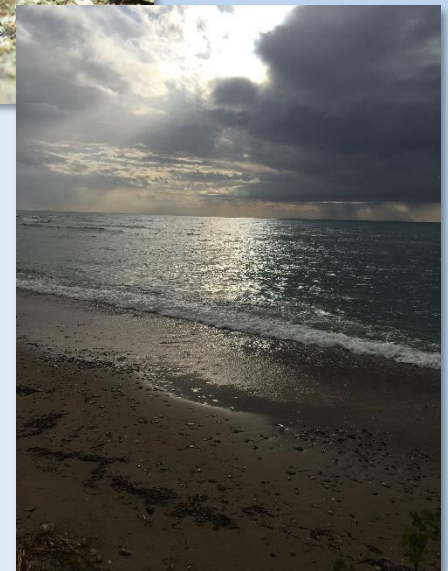
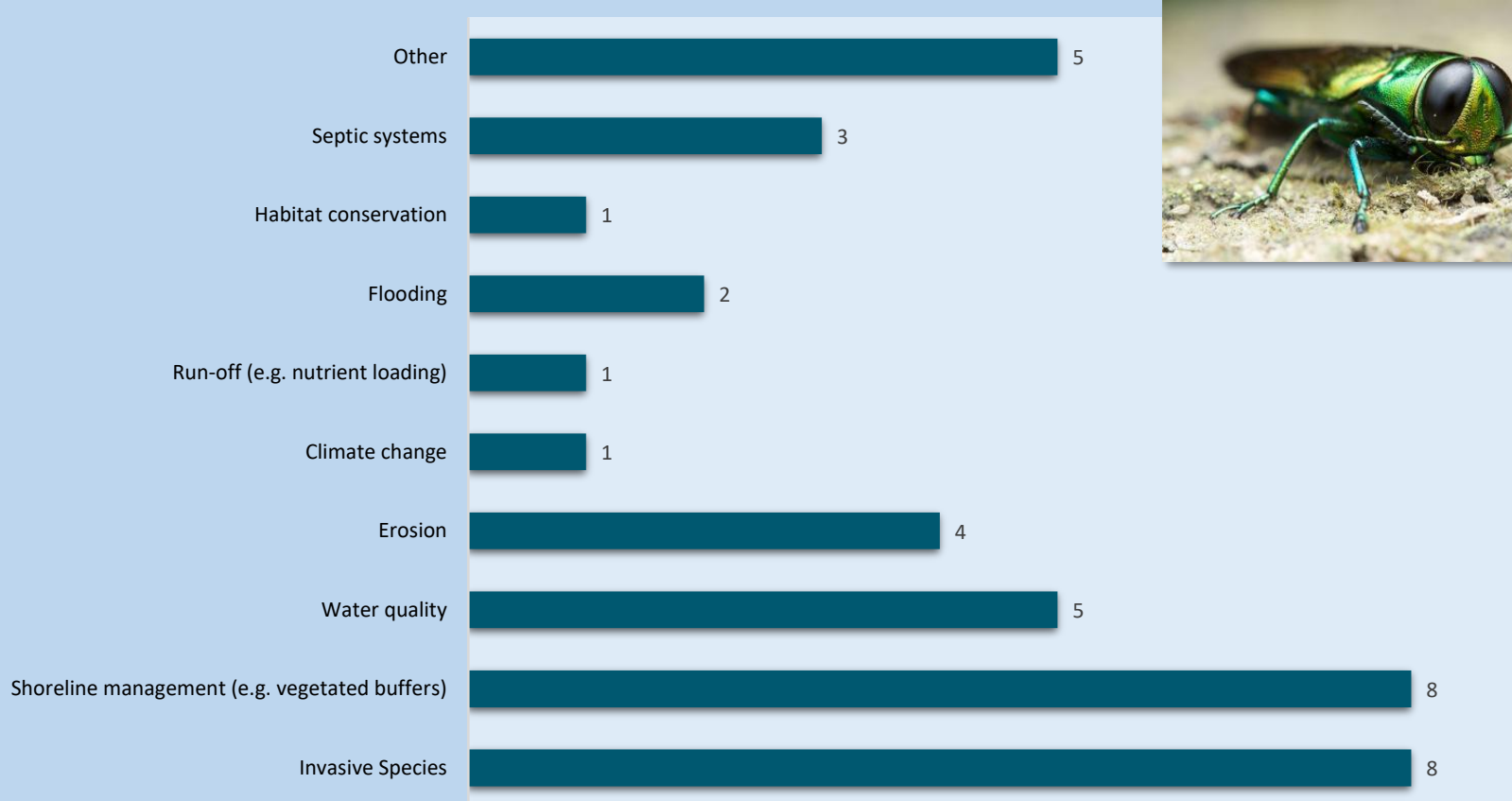
As with Lake & River Associations, a key objective of the survey for Municipal Officials was to explore the personal values, strengths, and priorities of shoreland decision-makers in Ontario.

When asked about their understanding of several key subjects related to shoreland stewardship and land-use, Municipal Officials seemed reasonably confident in their abilities, as illustrated in the figure below:



On a scale of 1 (Poor) to 5 (Excellent) Municipal Officials (on average) cited a medium to high level of competence in their understanding of: a) 'Shoreline management' (competency rating of 3.66), b) 'Environmental studies and science' (e.g. and understanding of environmental issues) (competency rating of 3.59), c) 'The *Planning Act*' (competency rating of 3.54), d) 'Biological science' (competency rating of 3.34), and e) 'The Provincial Policy Statement' (competency rating of 3.27). The lowest areas of understanding cited were 'Limnology' (i.e. the science of lakes and other inland waters) (competency rating of 2.68) and 'Statistics' (competency rating of 3.15). This may be a reflection of the highly-specific nature of these subjects. Overall, Municipal Officials considered themselves well-versed in a diversity of topics relevant to shoreland stewardship.

In addition to their reported personal understanding of shoreland science and policy topics, municipal councillors were also asked to share what scientific and policy-related topics they would most like to see included in a BMP resource for shoreland development and land-use policy. The results of this question are illustrated in the figure below:



Similar to the responses of Lake & River Associations, Municipal Officials' most cited topics for inclusion in a BMP resource included 'Invasive species' (8), 'Shoreline preservation and management' (8), and 'Water quality' (5). When asked to elaborate on what aspects of environmental conservation they most valued as elected officials, responses were quite similar:

'...Preserving natural areas. Water quality, understanding of impact to species, trees, native plants and their importance and life spans as well. How human impacts such as use of road salt and alternative methods in rural Ontario in road development...'

'...the key word is balance between development and preservation. I would protect endangered species, promote integrated multi-trails, set an ambitious Greenland spaces target for an integrated park system for both passive/active activities, set ambitious targets for the planting of trees per our Urban Design Tree Policy, protect waterfront at all cost for public use along with a marina that meets multiple stakeholders from youth to senior...'

'...Preserving natural areas and vegetative buffers. Creating an opportunity for property owners to enjoy and enhance their waterfront and helping them understand that stewardship and diversity is much better than lawns sloping down to a hard shoreline...'

'...preservation of all Fish and Wildlife assets. We are a Tourist oriented area and rely heavily on sustainable Fisheries and Wildlife populations...'

'... Building landscape level resiliency through every aspect possible - supporting biodiversity and native plants, insects and animals, reducing sprawl and preserving and restoring natural habitats, maintaining healthy riparian zones and wetlands to reduce impacts of flooding, increasing green space, tree planting, native plant gardens, rain gardens and other smaller scale changes that require a shift in mindset and aesthetic from the general public...'

'...Maintaining Forest cover and the Carbon sink they provide. Taking vulnerable lands out of agricultural production and development. Creating Green space in urban areas Good agricultural land use practices...'

'...Protecting Wetlands, Fish Habitat, Threatened Species Protecting Water Quality so Nutrients do not burden the environment causing eutrophic states...'



It is worth noting that Municipal Officials also elaborated on many ways they and their colleagues were attempting to implement the aforementioned conservation values into their Municipality's policies and practices. They also noted the difficulties associated with this implementation, corroborating the previous finding that 38% of respondents found it either 'Difficult' or 'Very difficult' to implement shoreland stewardship objectives in their municipal plans:

'...It is quite difficult to stick handle our way between special interest groups who are concerned about their bottom line more than protecting our environment, those who do not believe we are facing serious challenges and the environmentalists who want immediate action taken...'

'...very difficult to implement on regular basis, often dealing with issues on case by case, rather than broader policies, limited staff capacity in technical/environmental/sustainability field.'

'...The Regional Official Plan prohibits development within key natural heritage features and hydrologic features...'

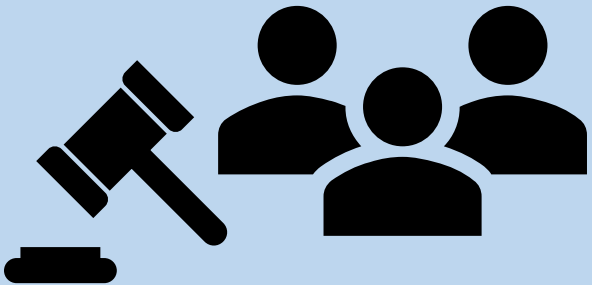
'...The environment and waterfront are key pillars in our Community-Based Strategic Plan and our Waterfront Master Plan. I anticipate that the updated Official Plan will also focus on land use and planning policies around sustainable development and environmental sensitivities...'

'...I have always professed the basis of how we can make it work not why we can't. This philosophy does not always sit well with the Province or local authorities...'

'...Our council has initiated a Zero Waste Committee and formed an Environmental Committee at the County level. Although the environment is a top priority of mine, we have a small municipality and insufficient staff to do this work, so I have taken it on. It has been very slow to start these committees, and though there is excellent engagement with members, it is also slow to get the work accomplished...'

'...Staff seem to believe they are the source of all information & if they don't have the expertise in environmental matters (and they don't) then it is very difficult to reflect these concerns and values...'

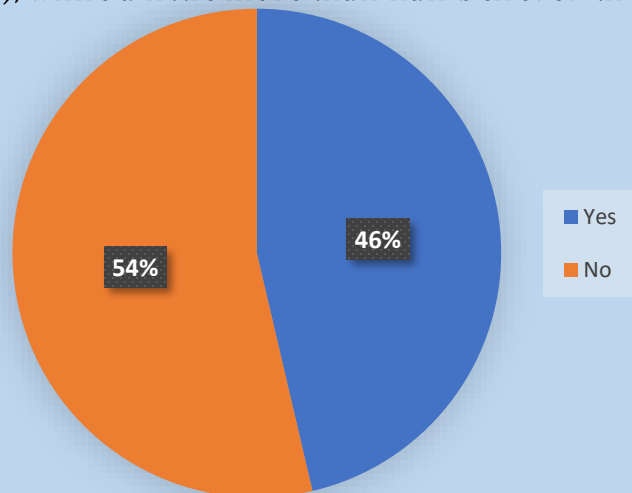
'... We have a tree replant policy at the County Level that ensures we do not lose forest areas We support local Conservation Authority on development and drainage issues We support minimum distance setbacks on new Agricultural buildings Our drainage works take into account species at-risk...'



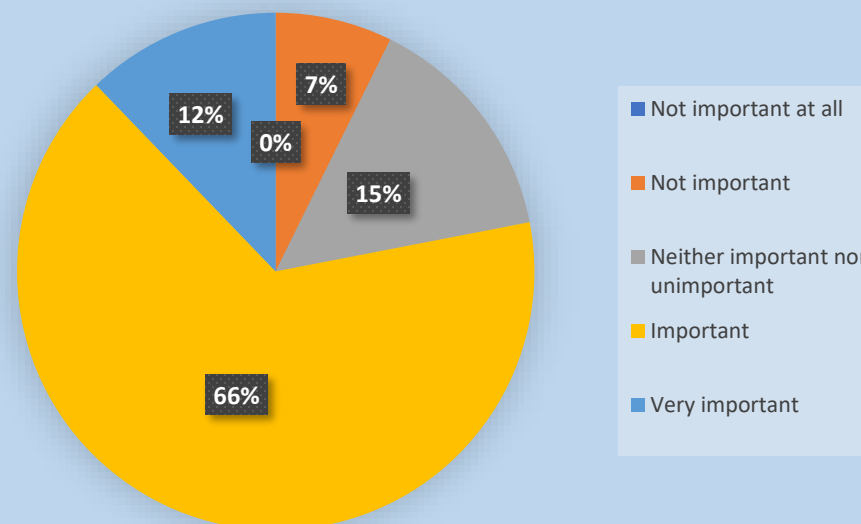
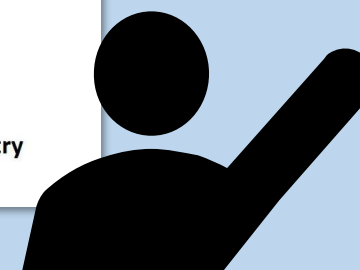
Solving Shoreland Issues: What *Municipal Officials* need and the importance of *best-practice resources*

It would seem there is a general desire on the part of Municipal Officials to implement enhanced and/or sustainable shoreland practices which reflect their own conservation values and that of their constituents. However, implementation is often stymied by competing interests and lobbying from those who do not support sustainable approaches and have financial clout. That being said, several promising local initiatives have been facilitated which support shoreland stewardship, and Municipal Officials seem eager to share these successes with other stakeholder groups and regional representatives.

Ultimately, reasonable barriers to implementing policies which reflect the conservation values of Municipal Officials and many constituents exist, resulting in a mix of positive shoreland policies and negative developments. This mix is reflected by the fact that, when asked if they believed that their municipality is a leader with respect to their policies supporting sustainability in shoreland management and use, close to half of the Municipal Officials surveyed were of the opinion that their region was a leader (46%), while a little more than half believed they were not (54%):



Municipal Officials cited significant use of BMP resources when working on and making decisions related to shoreland land-use and development. When asked how important external BMPs were in supporting these decisions, 78% of respondents said that BMPs were 'Important' (66%) or 'Very important' (12%), while only 7% believed they were 'Not important' (7%) or 'Not important at all' (0%).



According to many respondents, BMPs are most often provided by the regional Conservation Authority (where available), as well as from provincial agencies (e.g. Ontario Ministry of Natural Resources And Forestry), local environmental groups (e.g. Lake and River Associations), and other regional authorities (e.g. the National Capital Commission). The expertise and resources of local Planning departments is also utilized:



'...Provincial planning policies and conservation authority comments/requirements (e.g., EIS) on development applications inform the region's shoreline development practices and policies...'

'...Rideau Valley Conservation Authority proceedings. Upper Rideau Lake Association proceedings...'

'...Council relies on the expertise of our local conservation authority, The Nottawasaga Conservation Authority, to provide the scientific input on any waterfront development proposals. Our Planning staff deal directly with the NVCA for review and approval of waterfront environmental impacts of proposed developments...'

'...MNR, Fisheries and Oceans...'

'...We consult with the educated staff at the Conservation Authorities when discussing shoreline development. We are a tiny municipality and have no biologists or ecologists on staff. I personally am familiar with external resources such as How much is Enough from my previous career, but consult with Conservation Authorities with questions...'

Factors influencing the utilization of BMP resources were quite similar among the Municipal Officials surveyed. Length and simplicity were cited as major factors, as well as ease of procurement and access. A sample of detailed responses related to factors influencing BMP use are given here:

In addition to concerns about format, respondents also cited the importance of a modern document that deals with emerging sciences related to shoreland conservation (e.g. climate change) and one that expresses a level of creativity and presentability. Essentially, as one respondent put it, a resource that resists *the usual bureaucratic predisposition* and uses more 'enjoyable' writing and presentation styles.

Municipal Officials seemed quite receptive to the idea of participating in the 'shoreland network' aspect of the project, with 83% stating that their Municipality would find it either 'Somewhat useful' (40%) or 'Very useful' (43%) to take part in an interactive forum where stakeholders share ideas, best-practices and experiences in lake or river land-use:

'...easily accessible (e.g., online) -kept up to date based on emerging science, especially as it related to climate change impacts...'

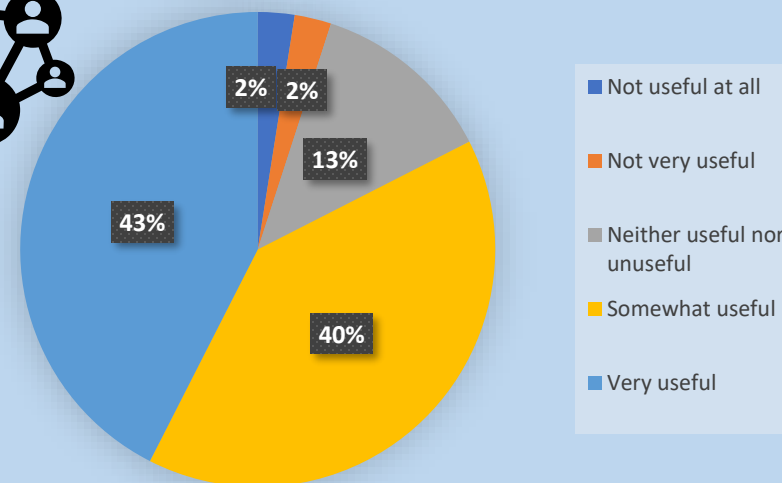
'...length, plain language/easy to understand & use (i.e. one pager), relevance to our area/pressures...'

'...Date of Publication, hopefully relevant within the last 5-7 years. I am always looking towards innovation and creativity in the field of sustainability along with best practices. I would like to see more sharing within this field between municipalities within/outside Ontario...'

'...A reading level used in the documents that clearly explains the resources involved, a history of their use, ideas for organizing a stewardship council (which were shamelessly disbanded by a previous provincial government by dropping financial support to groups already in place)...'

'...I have recently read a series of tomes on the St. Lawrence flooding challenges. Using that as an example I am back to my point about the need to employ an economy of words resisting the usual bureaucratic predisposition to enjoy the writing and discouraging the reading. Hire people who write journalistic style copy...'

'...We would welcome Best Management Practices ,the sooner the better Erosion issues are the most pressing issue, and we would welcome any ideas Science based resources are badly needed right now...'



Key Findings

Municipal councillors cited a variety of barriers to balancing shoreland stewardship and development in their region, most notably: 1) a lack of financial resources, 2) competing interests (i.e. environmental concern vs. development), 3) pressure from interested lobby groups, and 4) a perceived lack of guidance and support from the provincial government.

These barriers were reflected in the sentiment that stewardship goals were quite difficult to implement into their *Official Plans* and by-laws, including their own personal conservation values and goals. Municipal Officials seemed reasonably satisfied with the *effectiveness* of existing shoreland policies and practices in their Municipality, but less satisfied with their overall *comprehensiveness*. Specific municipal shoreland policies (e.g. minimum frontage, maximum waterfront lot size, minimum setbacks, etc.) were viewed in a rather positive light, and many Municipal Officials reported recent or upcoming overhauls to these policies which would or have already facilitated improved shoreland stewardship measures.

Municipal Officials expressed the importance of lake and river shorelands to the economy and to many of their constituents. Regardless, many expressed concern that development pressure was often taking precedence over environmental concerns. Many Municipal Officials believed that the Natural-Heritage and stewardship-related goals in their *Official Plans* and other municipal policies were at odds with several private property owners and developers who favoured unfettered development on private lands, a belief which mirrors that of Lake & River Associations.

Ultimately, Municipal Officials expressed a high level of concern about their region's environment, including species conservation, water quality, invasive species, and the preservation of natural shorelines. The issue did not seem to be the priorities of these Officials, but rather the difficulty in receiving adequate resources and support, as well as getting other stakeholders on board with their decisions and policy-related aspirations (again, see the issue of competing interests).

Municipal Officials expressed the importance of effective, and scientifically-informed BMP resources, and the need for greater networking and collaboration with regional and province-wide stakeholders who share an interest in shoreland ecosystems, whether for conservation or development.

RESULTS - Municipal Planners

Barriers to Shoreland Stewardship according to Planners

Like Municipal Officials, Planners represent a major decision-making group at the Municipal level. Often at the frontline of development applications and land-use disputes, Planners also provide necessary education and guidance to elected Officials and constituents, making them essential professionals in achieving shoreland stewardship in lake and river communities.

23 Planners responded to our *Survey for Municipal Planners*, making it the least represented stakeholder group. However, the data and feedback from these actors will be important to consider moving forward, as land-use planning provides much of the foundation for this project.

To begin, Planners were provided with the same list of barriers to balancing shoreland stewardship and development as was provided to Municipal Officials. Respondents were asked to rate these barriers on a scale of 1 (Insignificant) to 5 (Significant).



In keeping with the opinions expressed by their elected colleagues, Planners cited a 'Lack of financial resources' (significance rating of 3.61) and 'Competing interests' (significance rating of 3.57) as high ranking barriers. Other key differences and similarities between the responses of these two stakeholder groups included:

- Planners generally ranked each barrier higher than elected Municipal Officials. This was especially true for a 'Lack of long-term monitoring on waterfront properties' (Planners rating: 3.96 - Municipal Officials rating: 3.17), 'Illegal activities' (Planners rating: 3.43 - Municipal Officials rating: 2.76), and 'Lack of experience among municipal staff' (Planners rating: 3.48 - Municipal Officials rating: 2.88), showing differences of 0.69, 0.67, and 0.60, respectively.
- Both Planners and Municipal Officials agreed that 'Not enough consultation with stakeholders' was of relatively little significance as a barrier, with ratings of 2.57 and 2.80, respectively. This suggests that, at least in the view of Municipal Officials and Planners, there was a relatively sufficient level of communication with their clients and constituents.

When asked if they would elaborate or provide any additional barriers that were not listed with the survey, Planners provided various responses:

'...I believe that the economic desires of the municipality tend to be weighed as the most important factor in decision making at the detriment of other considerations...'

'...Lack of support for conservation authorities by many councils and municipal staff despite having an MOU in place...'

'...We need strict and clear provincial policies that do not permit any new development, site alteration and vegetation removal within a certain distance of water courses. Provincial wide policies and regulations are needed, so every municipality does not have to go through a one year process just to create a tree by-law. Many municipalities do not have the staff resources. So much time is spent on every municipality addressing the same issues. Or have a selection of templates ready for municipalities to use without having to draft and research different municipalities...'

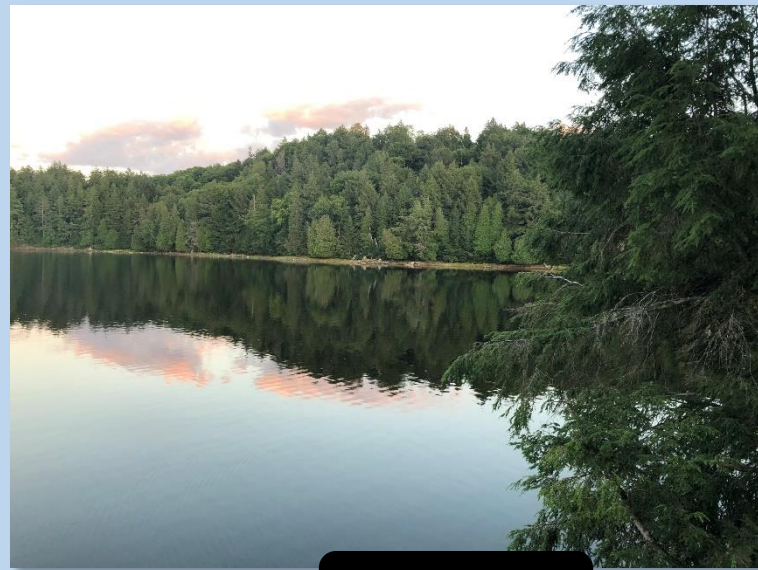
'...economic development interests seem to be the political winner. Everyone wants to build on the shoreline...'

'...The other challenge not noted above would be the landowners knowledge of the impacts to the environment. A lot of the time people do not understand the importance of shoreline planting or the water setback as they look at their property individually. Therefore, I would say the landowners interests is a significant barrier...'

'...After minor variance or site plan control agreement, there is typically no follow-up to ensure shoreline planting was conducted or shoreline vegetation preserved...'

'...Educating the public on why they can't build on the shoreline...'

'...Especially with respect to "Best Practices" I feel that there needs to be a good degree of information about mitigative measures, including guidelines or design criteria readily accessible (e.g., infiltration galleries). In smaller rural areas (i.e., in areas with significant natural areas) builders need the 'instructions' to go with the requirement, and decision makers need to know that the requirement would have tangible benefits and is 'doable'...'

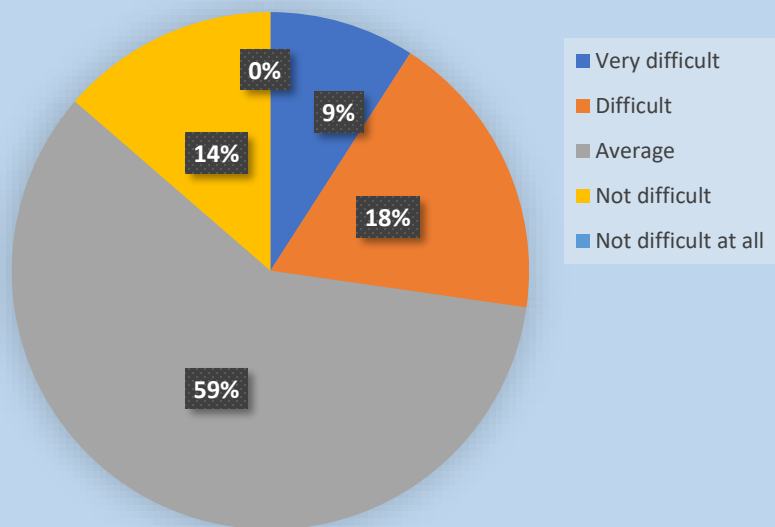


Shoreland Issues: *Land-use Policies, Attitudes, and Protected Areas*

Similar to Municipal Officials, Planners cited the need for more comprehensive and effective policies from the provincial level of government, which, they believe, will allow for a more effective mediation between competing interests at the local level.

Additionally, in a fashion very similar to Lake & River Associations, Planners consistently mentioned the need to address the attitudes, practices, and low levels of shoreland education on the part of waterfront property owners and developers.

When asked to gauge how difficult it was to ensure shoreland stewardship goals laid out in their *Official Plans* were implemented and/or upheld, the majority of Planners (59%) believed that they had about as much difficulty as those in other municipalities. These are trends quite similar to those provided by Municipal Officials, with the exception that Planners seemed to express a greater level of difficulty in upholding the stewardship objectives in their *Official Plans* and policies, with 27% stating that it had been either ‘Difficult (18%) or ‘Very difficult’ (9%), and only 14% stating that they had found it ‘Not difficult’ and 0% expressing no difficulty at all.

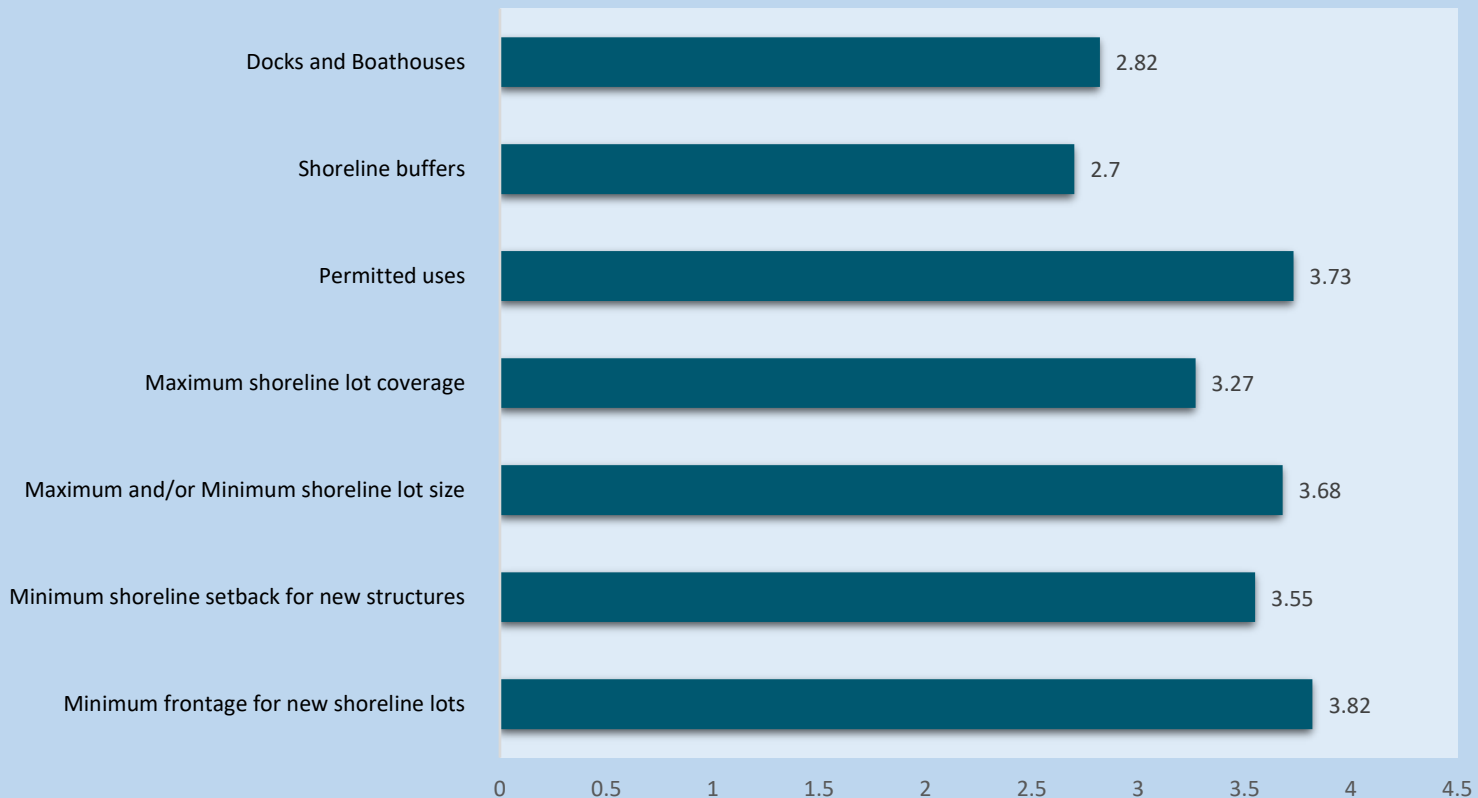
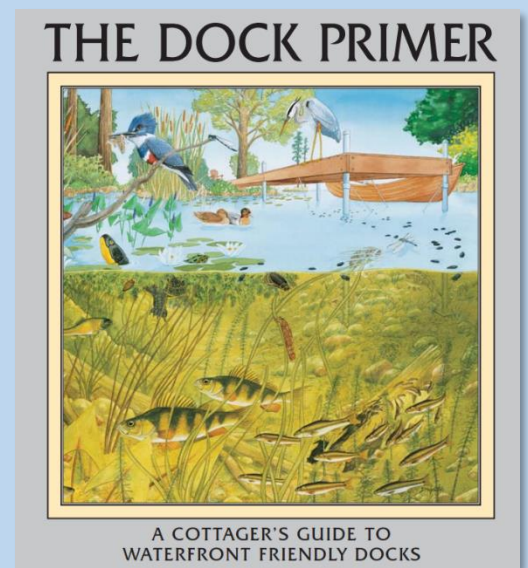


In addition to reporting greater levels of difficulty in implementing the stewardship objectives of their region’s *Official Plan* and by-laws, Planners also expressed considerably less satisfaction with the level of coverage afforded to shoreland issues in local Plans and by-laws relative to that of their elected counterparts.

On a scale of 1 (Incomprehensive) to 10 (Comprehensive), Planners provided an average score of 5.35 when asked about the thoroughness of their Municipality’s coverage of shoreland issues in its zoning by-laws and *Official Plan*, a total of 0.6 points lower than Municipal Officials



Interestingly, Planners seemed to express reasonable satisfaction with the actual effectiveness of shoreland by-laws and policies, even if they thought that shoreland stewardship was not covered thoroughly enough in said documents. The only area in which Planners differed significantly from Municipal Officials in this regard was ‘Docks and Boathouses’, reporting an average level of satisfaction of 2.83 compared to an average of 3.03 on the part of elected officials. Given that this was the largest difference between the two stakeholder groups (a difference of only 0.20) it is safe to assume that, on average, both Municipal Officials and Planners exhibit similar levels of satisfaction regarding particular elements of their *Official Plans* and zoning by-laws.



When asked to explain why they ranked these elements the way they did, Planners provided the following responses:

‘...I believe that we’ve established a good size for new waterfront lots (minimum 2 acres) and I believe that our policies regarding lots adjacent to waterfront lots are also strong (minimum 15 acres)...’

‘...We do have minimum buffers, the issue is vegetation clearing. Conservation Authorities do not regulate vegetation removal under Conservation of Land, they only regulate fill/grading. So municipalities must do this as well...’

‘...Our by-laws are very old and not specific to shoreline properties so there is no consideration from a by-law perspective for setbacks or buffers to shoreland...’

'...At some point, [our Municipality] is going to have take a hard look at its approach to shoreline structures, and to its policy of "grandfathering" certain elements of development if it wishes to retain its ecological health and environmental attributes...'

'...Minimum shoreline setbacks for new structures, permitted uses and docks and boathouses are related to the same concern that I have which is that marine facilities which include boathouses are permitted within 30m of the water and can be quite large in size. I believe the size should be more limited in the water setback to respect the functionality of boathouses but also the limited development within the 30m water setback. As for shoreline buffers, it would be interesting to know what shrubs and trees work best in this area as I'm newer to eastern Ontario...'

'...50% of the local municipal zoning by-laws have been updated and implement the County OP and 50% have not been updated, therefore local municipalities are not consistent...'

'...The Township's shoreline policies are not as clear as they could be in the Zoning By-law. Currently, there is no stipulation that differentiates between structure types. For example, a 30-metre setback applies to buildings, decks, gazebos, patios, and canopies. As a result, a minor variance is required for a small storage shed. I think there could be room for improvement to ensure adequate setbacks but also ensure some acceptable flexibility...'

'...shoreline lot coverage is a really tricky matter. Lot coverage has historically been in relation to neighbourhood feel or aesthetic. It seems recent that it has been applied as an environmental parameter. This is complicated because many shoreland properties are developed between a cottage road and the normal highwater mark of a lake...'

'...Vegetated buffers on the shoreline are very weak and there is not enforceable by-law to require a vegetative buffer but rather policies and recommendations in the Official Plan. The maximum shoreline lot coverage is small compared to lots in urban areas...'

'...Existing lots of record causes great concern when confronted with the desires of modern lakefront development. New lots are held to a much higher standard...'

It would seem Planners are quite consistent with their concerns, especially related to the need for updated by-laws and policies to meet the ever-changing nature of shoreland sustainability and our modern understanding of best-practices related to land-use. The concerns raised in these elaborations would seem to contrast with some of the ratings expressed in the previous question. This may be an artefact of the lower sample size for this stakeholder group, or due to Planners unsatisfied with their region's policies going into greater detail relative to respondents who were satisfied.

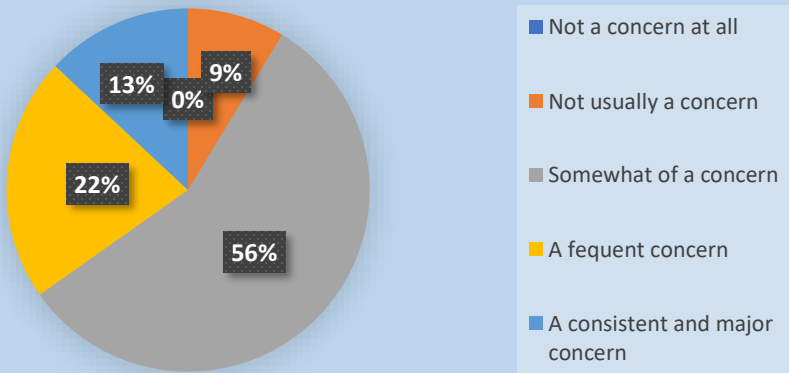
Given that Planners serve elected Municipal Officials *and* their constituents, it was critical to determine how they perceived the values and attitudes of their diverse client-base as they relate to shoreland stewardship and land-use

Like Municipal Officials, Planners afforded great value to shorelands in terms of their economic importance; on a scale of 1 (Not important) to 10 (Very Important), Planners rated the importance of lake and river-related activities as an 8.41 in relation to economic importance.

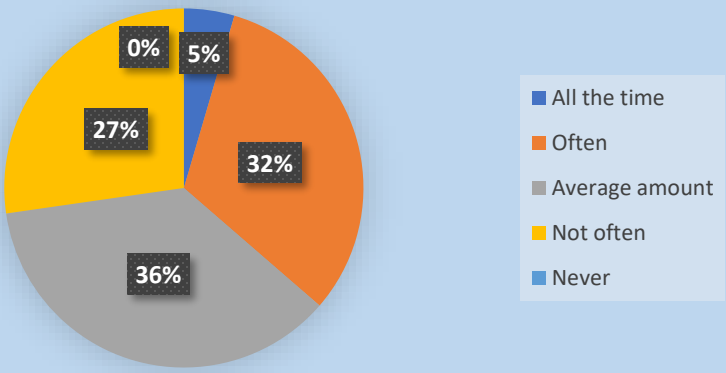


Planners reported that sustainable shoreland land-use and stewardship was quite important amongst their clients, with 35% reporting that it was either a ‘Frequent’ (22%) or ‘Consistent and major’ concern (13%). Only 9% reported that shoreland stewardship was ‘Not usually a concern’ among their clients, and 0% said that it is was ‘Not a concern at all’. The remaining respondents (56%) listed stewardship as ‘Somewhat of a concern’ among their clients, indicating that most Planners’ clients were at least somewhat cognizant of shoreland issues. Planners provided very similar responses to Municipal Officials when asked about rates of illegal shoreland development in their region, with 35% stating that said development occurred ‘Often’ (32%) or ‘All the time’ (5%). None of the Planners who participated in the survey said that illegal or unregulated land-use ‘Never’ occurred.

How much of a concern is shoreland stewardship among your clients?



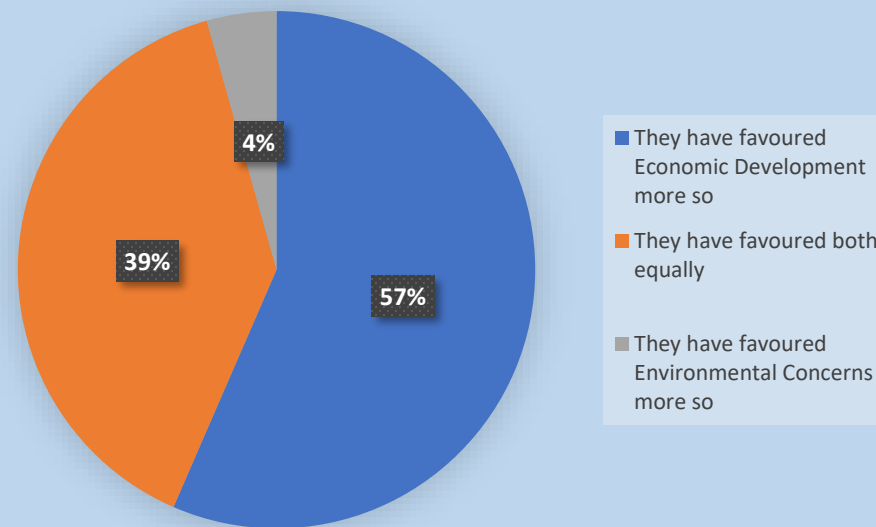
How often does illegal activity occur on local shorelands?



Planners were also asked to gauge the nature of land-use decisions and policies in their region, and whether they believed there was a balance between environmental concern and development pressure when these decisions were being made.

In a major deviation from their elected counterparts, the majority of Municipal Planners surveyed (57%) believed that land-use decisions favoured economic development over environmental concerns (this in comparison to 33% of Municipal Officials). Only 4% of Planners considered environmental concerns the predominant concern during land-use decision-making in their region, with a balance between development and environment cited by 39% of respondents.

When asked to elaborate on this question, Planners responded quite vigorously, alluding to the apparent dichotomy between development and the environment during the decision-making process in their Municipality:



'...tax and jobs rule over nature...'

'...I believe that many of our councillors strongly value economic development wherever possible, based on comments and actions taken...'

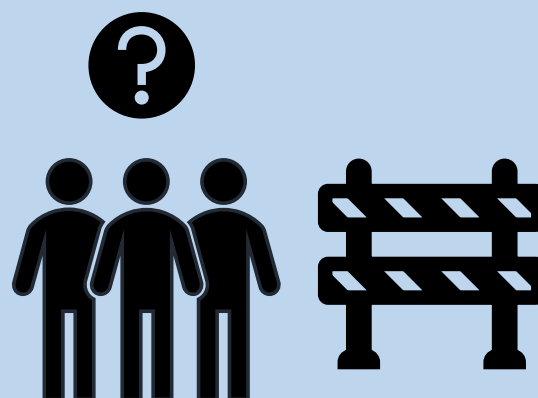
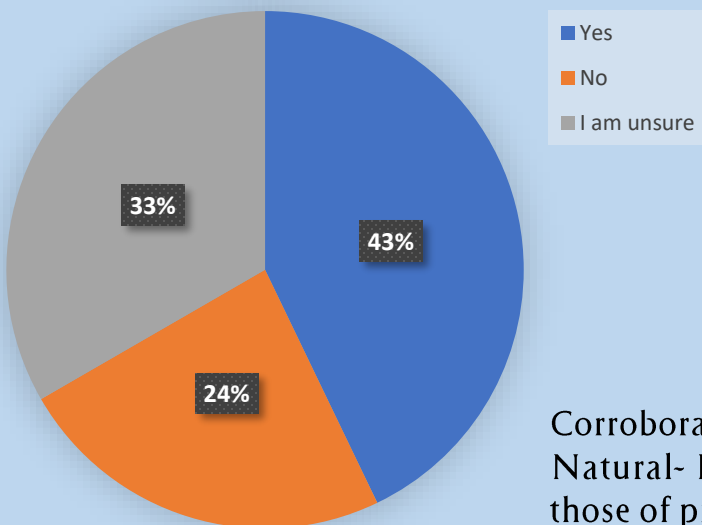
'...A lot of planners don't check for environmental issues, they treat trees the same as pavement. It is slowly getting better...'

'...Pressure from residents and developers on the politicians to do what they want...'

'...The policies themselves try to strike a balanced approach, but the practices tend to lean towards the economics - with real estate values so high (and rising!), especially on Muskoka's shorelines, money often talks louder than environmental conservation...'

'...There is limited commercial properties in the Township as there are mostly residential lots. Therefore, I believe there is a greater concern for economic development...'

'...I think this because there has been much residential development on shoreland properties. Environmental concerns seem to only appear near Provincially Significant Features, but they can be eliminated if Setbacks from these features are met or increased...'



Corroborating the results from the previous question, 43% of Planners suggested that the Natural- Heritage objectives in their Municipality's by-laws and *Official Plan* were at odds with those of property owners and developers in their region, elaborating with the following responses:

'...I believe that many of the developers in our municipality are not used to large scale developments, so they may be caught off guard by the expectations and expense related to development near Shoreland properties...'

'...People want to do whatever they want on their own property and don't think they should be affected by rules from municipal government...'

'...I think some people purchase waterfront lots with the thought that they can build right at the water. Especially in the case of existing non-complying dwellings where people want to remain 1m from the water rather than moving back to 30m...'

'...I once had a property owner tell me, "All I am asking is that the Township approve what I want to do with my cottage, even though I wouldn't want my neighbours to be approved for the same thing." The statement was said as a joke, but it really does highlight the realities of waterfront development. The tragedy of the commons is a reality with shared resources as important as a lake or river...'

'...Lack of education and desire for a certain image of shoreline development that does not include a naturalized shoreline...'

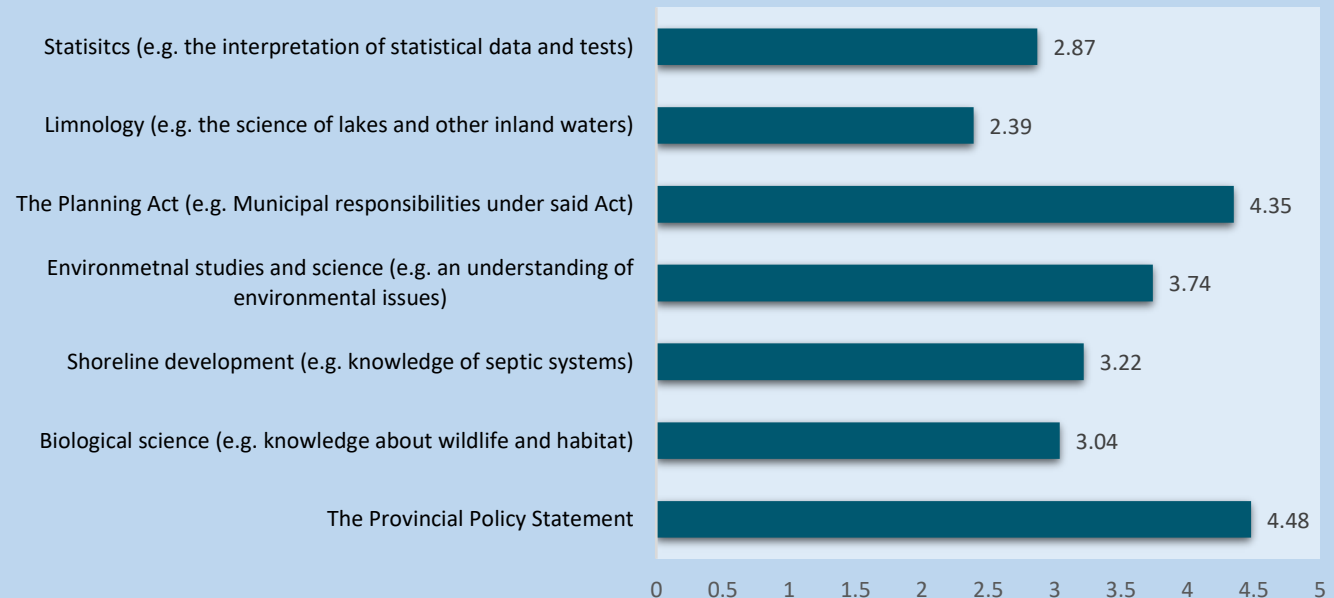
'...Most people just "want what they want". Also, they prefer the rules to apply to their neighbours but not themselves. Majority of shoreland owners are "good people", but everyone thinks of her own individual actions as not having a large impact on the overall health. Few see themselves as part of a collective where the sum of their individual actions has a larger environmental and societal impact...'

'...On the face of it, the answer is no. The public strongly supports shoreline and water quality protection initiatives, often objecting to new development. However, there are hundreds of applications annually across Muskoka for relief from zoning by-law provisions intended to in whole or in part to protect these features. The message should be "how do we build better"...'

There are observable similarities between responses from Planners and those provided by Lake & River Associations regarding the attitudes of local constituents. That is, Planners have report consistent unsustainable values amongst their own clients, many expressing the *'its my property, I should be able to do as I please'* attitude mentioned previously in this report. A lack of education and understanding on the part of these actors is cited, strengthening the apparent need for stronger educative measures related to shoreland stewardship and sustainability in a diversity of regions.

In addition to discerning the opinions and values of their clients, this survey also meant to gauge the environmental values of Planners themselves, as well as their perceived strengths and weaknesses in areas related to shoreland science, stewardship, and policy.

When asked to rate their knowledge in seven key areas on a scale of 1 (Poor) to 5 (Excellent), Planners provided the following feedback:



Perhaps unsurprisingly, Planners exhibited a high level of expertise (above the 80th percentile) regarding the Provincial Policy Statement (PPS) and the *Planning Act*, both critical legal documents pertaining to the trajectory and regulations behind land-use policy in Ontario. Planners expressed much less confidence in their understanding of biological science (competency rating of 3.04), statistics (competency rating of 2.87), and limnology (competency rating of 2.39), and a reasonable level of understanding about shoreline development (competency rating of 3.22) and environmental issues (competency rating of 3.74). This suggests that, while maintaining relative expertise in the areas of policy and environmental studies, Planners see room for improvement in their knowledge of natural sciences and the interpretation of said science. This could provide a window of opportunity for future educative measures meant to enhance scientific understanding of shoreland ecosystems among stakeholders who influence and rely upon them.

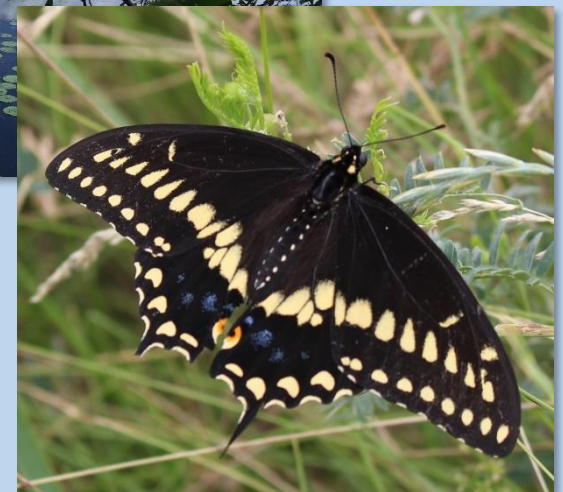
When asked about what aspects of environmental conservation they most valued, Planners provided many already described by Lake & River Associations and Municipal Officials, with additional value being placed upon preserving natural and protected areas:

'...For me, I believe that preserving areas of significant value and their interconnections is most import to me personally. I understand that some undeveloped areas will be developed eventually, but if features such as PSWs can be preserved that development is less likely to cause harm...'

'...Preserving undeveloped areas, systems planning, restoration of degraded areas...'

'...Preserving undeveloped areas and buffers to significant environmental features...'

'...I value considering things from a cumulative standpoint and ensuring that a watershed-wide approach is used when possible, and that macro-evidence based approaches are used to support local policies. The preservation of natural areas is crucial to me for a variety of reasons (environmental, social, economic) and directing growth in a sustainable manner is very key to making that happen...'



'...Public Education preservation of natural heritage protection of water quality...'

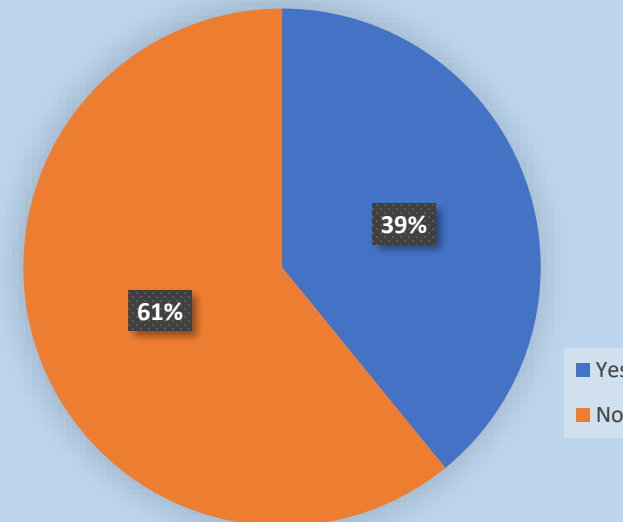
'...Protection/preservation of natural environments and landscapes including the individual natural heritage and hydrologic features that comprise them. Protection of endangered species and threatened species is another significant item that I also value highly...'

'...Protection of wildlife habitat and lake quality...'

'...preserving natural spaces preserving water quality convincing people that they can have what they want and also help improve/maintain environment for everyone by their actions...'

'...Strong links to climate change, stormwater management, overall ecosystem resiliency, protection of large tracts of undeveloped lands, and ecosystem valuation are particularly important at the watershed scale...'

'...Species at risk, Shoreline stabilization/preservation through natural channels. Minimalization of shoreline hardening and structures used to access the water...'



According to Planners, the actual implementation or expression of these values at the level of land-use policy has experienced mixed, with some Planners citing little opportunity to implement their values and others stating that they have already embedded their values into *Official Plans* and land-use recommendations. This could be a reason for only 39% of Planners believing that their Municipality was a 'leader' in sustainable shoreland development (see chart above). Some additional comments about implementation of environmental values included:

'...I try to reference environmental policies wherever possible, and I work closely with the Conservation Authorities and other experts. I understand that development does need to proceed, but I try to be cautious and expect exceptional environmental protection from the developers that I work with on projects. It can be difficult, as many people don't understand why these policies are in place and will complain to (or about) me, however, I always feel confident that I am basing my expectations in policy and science...'

'...Our policies are very weak as they stem from the PPS. The County only hired an Environmental Planner in the last year. Prior to that planners raised no concerns with owners or developers clear cutting forests to build new homes. It has been a struggle to get municipal planners to circulate the environmental planner applications and implement recommendations as conditions, such as a tree protection plan, development agreement. There has not been much support from other staff. This has been a huge barrier...'

'...These values are not demonstrated in my practices as i am a development planner so usually the developer gets to do what they want and provide no protections for undeveloped areas and minimal protections for significant environmental features...'

'...I am fortunate to work as a planner and also as a liaison with community organizations including Muskoka Watershed Council, so my work reflects my values consistently, and I have plenty of opportunities to ensure that they do. I am aware this is rare, and it certainly hasn't always been the case in my career...'

'...County OP is up to date to protect these elements Therefore our Decisions consider these elements Full support from Council through their decision making process...'

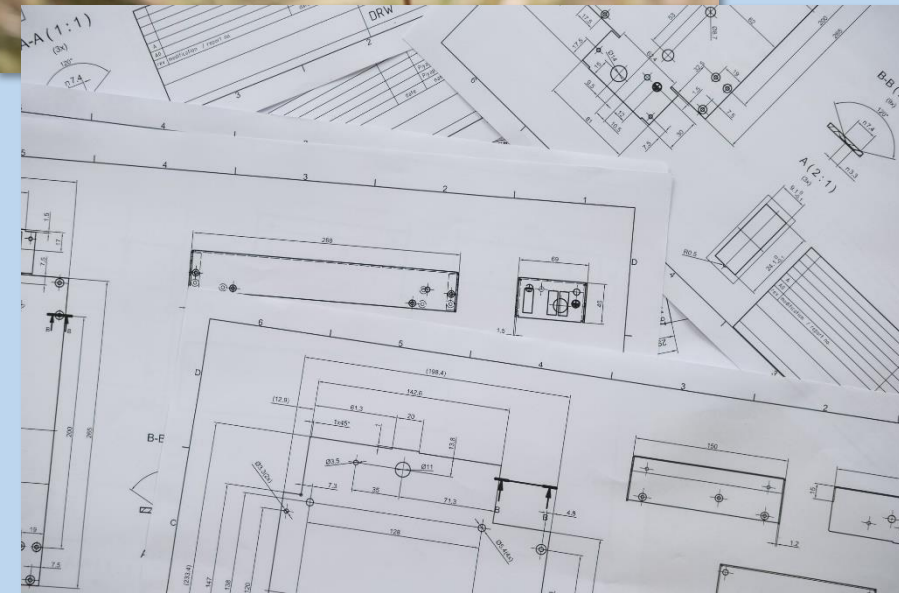
'...Recent changes to the Growth Plan have made it easier to protect individual environmental features (development in an NHS has to demonstrate that it is outside a natural heritage feature or hydrologic feature, and not the no negative impact test which previously applied across the province)...'

'...Through the protection of environmentally sensitive lands by the new Township OP (2018). More protection will be in place through the new Zoning By-law (2021)...'

'...One has to be very careful that individual passions do not override duty to employers, the public and others in the profession. I think there is a lot of good text in the PPS, Planning Act, OPs and Zoning By-laws that lends itself to being environmentally conscious. Using the tools to effectively articulate a sound position, both economically and environmentally, will often ensure that the project is sustainable...'

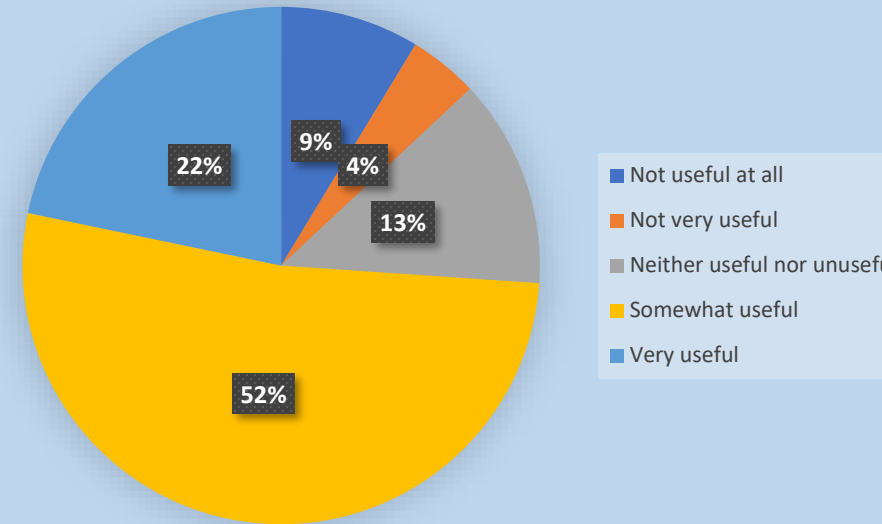
'...Very difficult as I do not have any background on what best practices are, and the Township has minimal polices with the exception of an EIA and 30 metre setback. It would be great to have even guidelines of what an EIA must speak too and when or when not it would be best to have one...'

'...Recommendations for shoreline plantings; site plan control. In general, placing the requirement is easy, implementation (and enforcement) is more difficult...'



Solving Shoreland Issues: *Best-practices and what our Planners need*

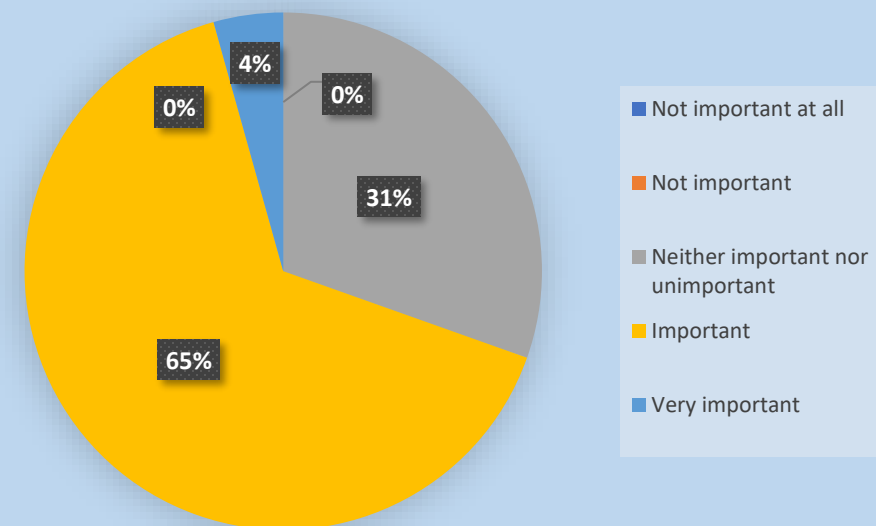
It would seem that, despite maintaining solid environmental and conservation values, Planners have often found it difficult to implement or express said values due to professional constraints or the nature of their position. Again, competing interests play a major role in determining the implementation of shoreland stewardship values into municipal practices and land-use. That is not to say this has not already occurred. Indeed several Planners expressed great success in their region in relation to preserving natural shorelands through land-use policies. Greater networking and communication between these Planners could be beneficial. In fact, Municipal Planners seemed quite receptive to the idea of participating in a 'shoreland network' and the forum component of the *Planning For our Shorelands* project, with a large majority (74%) believing that said forum would be either 'Somewhat' (52%) or 'Very' (22%) useful.



Planners were also quite enthusiastic about using a BMP resource related to shoreland development. 69% of Planners who participated in the survey believed that BMPs were 'Important' (65%) or 'Very important' (4%) to their work as a Planner. None of the respondents believed that BMPs were 'Not important' or 'Not important at all', with the remaining 31% stating that they had no opinion (i.e. they believed BMPs were 'Neither important nor unimportant' to their work as a Planner).

In deciding whether or not to utilize a BMP, Planners cited many of the same reasons as Lake & River Associations and Municipal Officials, including:

- 1) Length
- 2) Use of case examples
- 3) Date of Publication
- 4) Applicability to specific watershed
- 5) Format (e.g. electronic availability)
- 6) Ease of use
- 7) A *living* document which evolves to the needs of shoreland Planning
- 8) Shoreland standards supported by Scientific articles and references



SUMMARY AND DISCUSSION

Key Findings

Planners shared many of the experiences and concerns of Lake & River Associations and Municipal Officials. These actors agreed with the prevalence of 'competing interests' and its role as a barrier to making significant changes to the way shorelands are managed and planned for in their region. A lack of long-term monitoring on shoreland properties was a significant concern among Planners, as was improving shoreland stewardship education for waterfront property owners and developers who work the land.

Planners expressed reasonable difficulty in implementing many shoreland policies in their Municipality and believed that shoreland issues were not comprehensively covered in their region's *Official Plan* or zoning by-laws. However, many Planners believed that their *Official Plan* and zoning by-laws, while perhaps not sufficiently thorough in its coverage of shoreland issues, did a reasonably well job of accomplishing the objectives of the Municipality, perhaps with the exception of policies related to docks and boathouses and shoreline buffer zones.

Lake and river activities were extremely important economically in the regions where Planners operated, and Planners cited a medium - high level of concern about shoreland health on the part of their clients.

Despite these concerns, Planners were of the opinion that development often took precedent over environmental concerns when it came to land-use decisions, and that many of their colleagues lacked necessary experience or expertise to make informed decisions. Otherwise, the type of planning work they conducted did not allow for ensuring a balance between environmental conservation and development.

Planners expressed their high level of confidence dealing with relevant policy documents (e.g. the Provincial Policy Statement and the *Planning Act*), but less confidence with scientific issues, the latter representing a potential area for training and skill-sharing initiatives.

Respondents cited the highly important role BMPs had in supplementing their work as Planners and seemed quite eager to participate in a shoreland network and the forum-related opportunities provided through the *Planning For Our Shorelands* project.

Conclusions

The results of our three stakeholder surveys provided thorough and meaningful feedback that will enhance the *Planning For Our Shorelands* project. It was important for us to use a *ground-up* approach in starting this initiative, that is, an approach that involved active collaboration and consultation with the stakeholders who would ultimately utilize the shoreland resources our project provides.

Each of the three stakeholder groups had different perspectives about the barriers that limited shoreland sustainability in their region, but they also showed agreeance on several topics, namely that a lack of shoreland stewardship education (and subsequent unsustainable attitudes) existed among waterfront property owners and developers. Indeed, the results of these surveys seem to suggest quite forcefully that values and education related to shoreland stewardship were both significant limiting factors in achieving the lake or river related goals of their association or Municipality.

Ultimately, each respondent surveyed seemed to share a general concern for environmental conservation and the health of freshwater lakes and rivers, regardless of the stakeholder group to which they belonged. The difficulty seemed not to be in the attitudes of those surveyed, but rather in the challenges associated with the implementation and enforcement of said values, as well as the difficulties in their expression within municipal by-laws and *Official Plans*.

There was somewhat of a consensus among respondents about needed improvement or amendment of local policies related to shoreland development and land-use. Indeed, there was little confidence concerning the thoroughness of municipal plans and policies related to shoreland stewardship, and the effectiveness of the policies that did exist were often called into question.

Again, decision makers (Planners and elected Officials) expressed the inherent challenges they faced embedding environmental values into the policies they developed. Often, development pressure took precedence over environmental concern, but this was not occurring across the board. Indeed, many respondents shared encouraging experiences about updated policies and initiatives which, they believed, were in the best interest of their clients, constituents, and local shoreland ecosystems. Much of the time, successful policies and programs are facilitated in collaboration with local Conservation Authorities and environmental associations, including Lake & River Groups, personifying the need for collaboration among and between said groups.

There are several major conclusions to be drawn from this report:

- 1) 'Shoreland Networking' and collaboration will prove essential for the enhancement of shoreland stewardship in Ontario. Stronger collaboration between municipalities regarding development and protection of regional shorelands and freshwaters could lead to more environmentally sustainable land-use. This is especially true for small, rural regions where staff or resources are lacking. This could involve simple skill-sharing to the exchange of tangible resources. Each stakeholder group agreed that there was great potential for shoreland enhancement via the sharing of ideas, case-studies, and best-practices, all of which could occur through the utilization of a strong 'shoreland network'.

- 2) Enhanced shoreland education will be critical for waterfront property owners and developers, especially as demand for waterfront properties and subsequent development increase in lake and river regions. While some respondents mentioned the need for strong by-laws and *Official Plans*, it seems that even in situations where these are strong, measures of implementation and enforcement continue to be lacking. As such, many waterfront property owners and developers will continue unsustainable land-use practices within shorelands in the absence of cordial and meaningful dialogue and subsequent efforts to improve collaboration and shoreland education. Webinars and lectures facilitated by experts (and which are open to public registration) could provide a means to influencing a wider audience of shoreland stakeholders. Greater utilization of social media for sharing educative materials will also be important, especially interactive, and visual platforms such as YouTube.
- 3) Shoreland stakeholders see an immediate need for interactive, *organic*, accessible, and creative BMP resources which speak to current issues in shoreland development and land-use. Scientific information and best-practices do exist, the issue is framing said information in a context and format that is 'digestible' across groups maintaining heterogenous levels of experience and expertise (e.g. Planning departments, Municipal councils, Lake & River Associations, Building Associations, Property Owners, etc.) Decision trees and models which provide practical and simple visual tools informed by science could be utilized to improve the rate of engagement in stewardship and the rate of their implementation. Such resources should be made available in a diversity of formats, including an interactive website that is accessible across stakeholder groups.

Progress within the realm of shoreland stewardship will arise from [The creation of Shoreland Networks](#), [Improved Shoreland Education](#), and the [Provision of Succinct Shoreland Resources Informed by Science](#). These should form the pillars of any attempt to mediate issues as complex and politically charged as land-use and development.

Shoreland Networks could provide numerous opportunities for skill sharing between elected Officials and Planning departments, leading to gradual improvement of local shoreland development and land-use policies. Coupled with significant campaigns to educate property owners in a collaborative manner, this could facilitate significant progress for protecting shoreland ecosystems.

Many regions have made progress in promoting and implementing shoreland stewardship on their lakes and rivers, and through collaborative shoreland networking initiatives, educational programs, and science based guidelines, this trend can be expanded upon to include the whole of Ontario. It is our hope that *Planning For Our Shorelands* will help spearhead these collaborations and educative efforts in the years to come.

References

- Egan, K. (2014). *Shoreline modification impacts on lake ecology as a result of intensive cottage cluster development* [Master's Thesis, University of Toronto]. TSpace Database. Retrieved from: <https://tspace.library.utoronto.ca/handle/1807/68007>.
- Executive Lawn Care (2019) Bobcat work [Electronic image]. Retrieved from: <http://executivelawncareservices.com/>.
- Federation of Ontario Cottagers' Associations (FOCA) (2015). A Shoreline Owner's Guide to Healthy Waterfronts (3rd edition) [Screenshot of cover image]. Retrieved and adapted from: https://foca.on.ca/wp-content/uploads/Shoreline_Owners_Guide_2015/files/index.html.
- Fisheries and Oceans Canada (2008). The Dock Primer: A cottager's guide to waterfront friendly docks [Screenshot of cover illustration]. DFO/2008-1430 ©Her Majesty the Queen in Right of Canada 2008. Retrieved from: https://www.lwcb.ca/beforeyoubuild/dock-quais-on_e.pdf.
- Fox, A. (2013). Eurasian water-milfoil *Myriophyllum spicatum*. [Photograph]. Retrieved from: <https://www.forestryimages.org/browse/subthumb.cfm?sub=3055&cat=3&systemid=2>.
- Milius, S. (2017). Emerald ash borer [Photograph]. Retrieved from: <http://arbnet.org/dietary-habits-emerald-ash-borer-beetle-are-complicated>.
- Muskoka 411 (2016). Waterfront for Sale Sign [Electronic image]. Retrieved and adapted from: <https://muskoka411.com/waterfront-sales-smash-september-record/>.
- OFAH/OMNRF Invading Species Awareness Program. (2012). Round Goby [Electronic image]. Retrieved from: www.invadingspecies.com.
- Ontario Ministry of Municipal Affairs and Housing (2010) Citizens' Guide: Official Plans [Screenshot of Cover image]. Retrieved and adapted from: <http://www.mah.gov.on.ca/AssetFactory.aspx?did=11149>.
- Ontario Ministry of Municipal Affairs and Housing (2010). Citizens' Guide: The Planning Act [Screenshot of Cover image]. Retrieved and adapted from: <http://www.mah.gov.on.ca/AssetFactory.aspx?did=11145>.
- Ontario Ministry of Municipal Affairs and Housing (2020). Provincial Policy Statement: Under the *Planning Act* [Screenshot of cover image]. © Queen's Printer for Ontario, 2020. ISBN 978-1-4868-4231-5 (PDF). Retrieved and adapted from: <https://files.ontario.ca/mmah-provincial-policy-statement-2020-accessible-final-en-2020-02-14.pdf>.
- Paterson, S.K., O'Donnell, A., Loomis, D.K., & Hom, P. (2010). The Social and Economic Effects of Shoreline Change: North Atlantic, South Atlantic, Gulf of Mexico, and Great Lakes Regional Overview. Human Dimensions of Natural Resource Management Research Unit. Retrieved from: https://www.researchgate.net/publication/265631859_The_Social_and_Economic_Effects_of_Shoreline_Change_North_Atlantic_South_Atlantic_Gulf_of_Mexico_and_Great_Lakes_Regional_Overview.
- Westman, W.E. (1985). Ecology, Impact Assessment, and Environmental Planning [Screenshot of cover illustration]. Wiley-Interscience. ISBN-13: 978-0471808954. Retrieved and adapted from: <https://www.wiley.com/en-us/Ecology%2C+Impact+Assessment%2C+and+Environmental+Planning-p-9780471808954>.
- Whicher, G.J. (2004). Ontario Planning Law & Practice [Screenshot of Cover image]. LexisNexis Canada. ISBN/ISSN: 9780433442950. Retrieved and adapted from: <https://store.lexisnexis.ca/en/categories/shop-by-jurisdiction/ontario-10/ontario-planning-law-practice-skusku-cad-00486/details>.