

**Ausable Bayfield Conservation Authority
Shoreline Management Plan Update**

Steering Committee Meeting

May 12, 2016

Participants:

Alex MacDougall

Burkhard Metzger

Doug Geoffrey

George Irvin

Jamie Colliver

Jeff Winzenried (Water Resources Technician, Maitland Valley Conservation Authority for Steve Jackson, Maitland Valley CA)

John Gillespie

Keith Locking

Marissa Vaughan

Monica Walker-Bolton

Patti Richardson

Patty Hayman

ABCA Staff:

Alec Scott

Geoff Cade

Tim Cumming

Tracey McPherson

Meghan Tydd-Hrynyk

Andrew Bicknell

Consulting Team:

Judy Sullivan, Aqua Solutions 5 Inc.

Dr. Robin Davidson-Arnott

Karen Wianecki, Planning Solutions Inc.

1.0 Introduction

Alec welcomed all in attendance and provided a brief overview of the project objectives. Alec noted that ABCA is updating its Shoreline Management Plan to ensure the document is relevant and reflective of current policy and in particular to look at long-term erosion rates, potential climate change impacts along the lakeshore, to consider river dredging and whether this has impacts on activities that are occurring along the shoreline. Alec noted that once this information is gathered, ABCA will be sharing this information with the public. A critical objective of the project is to improve understanding and knowledge of shoreline process.

2.0 Meeting Purpose & Objectives

Karen provided an overview of the meeting purpose and objectives. She reviewed the Agenda and made reference to the meeting materials previously distributed. The meeting, as noted, would focus on achieving the following key objectives:

- To offer a status update of progress since the first Steering Committee meeting in October
- To share information material developed or being developed with community members (e.g. Community Newsletter; Riparian Landowner Fact Sheet)
- To discuss municipal and community engagement process and timelines for community meetings
- To allow observers to ask questions or raise issues at the end of the meeting (15 minutes allocated)
- To discuss next steps.

3.0 Status Update on Consulting Team Progress

3.1 Recession Rate Calculation – Initial Results

Dr. Robin Davidson-Arnott

Robin provided an overview of the methodology and key challenges associated with reconciling the data. He made reference to the original proposed methodology but noted that because of the way the maps and underlying grid were printed, there were visible shifts between the image and Easting-Northing grid causing unreasonably high registration residual error. A number of possible fixes were attempted and a final approach was developed to give an acceptable level of accuracy. Robin reviewed in detail, the process that was followed to calculate recession rates.

Robin noted that the product that has been developed to date remains a work in progress as there are some data points that will require refinement and review. The final revised recession rates will be sent to Tracey next week. The process, as Robin noted, takes a long time because the shoreline is complex. Robin shared a number of photographs from specific locations (2014 & 2016) across the watershed to document and indicate low, moderate, and high recession rates, noting that the recession rates evidenced in comparative photos in fact correspond to the recession rates that emerged through the calculation exercise. Work is continuing to validate the calculated recession rates. The transect data was set at 50 metres; within the transects, there will be temporal variation and variability. There is a need to ‘smooth’ the data and a detailed scientific approach has been developed. For each data point in the smoothing process, the recession rate data is taken (50 m apart) along with two points 100 m on either side of the data point then it smooths the results along the coastline. The technical details are available and once the data has been finalized, it will be uploaded and made available to those with an interest.

Questions & Comments:

- C1: AM noted he has photos of shoreline slumping if that would be of interest.
- A: Noted by RDA that while he would be interested in the photos, he is not a seismic specialist and any interpretation would have to be left to Terraprobe who are qualified to make any specific comments.
- Q2: How do you account for different erosion rates in a small geographic area?
- A: The provincial policy says that the recession rate is calculated as if the recession occurs without being impacted by shore protection. You can observe what is happening in the field. With the smoothing part, we are smoothing from no protection into protection so there is some indication that we can expect recession.
- Q3: In your analysis where there is shore protection will this not affect recession rate?
- A: The actual measurements we make will be the toe of bluff in 1973 and the toe of bluff in 2007; this is the raw data.
- Q: If shoreline protection was allowed is it not possible to stop that erosion rate altogether?
- A: It will stop toe of bluff erosion for a period of time but not forever. It could be 5-20 years based on the quality of the material that is used. Generally speaking, the better the design and the type of structure that is introduced, the longer the lifespan but regardless any shoreline protection work will not last forever, nor will it stop erosion. The underwater erosion will continue and the shore protection works will eventually fail.
- Q: In 20 years, it does not appear that the shoreline has not made any adjustments?
- A: For 15 years there have been low lake levels and the banks seem to be stable. The shore protection works may appear to be working fine, but over time the structures will fail this is because the down cutting is still occurring offshore for the 15 years, even though the water levels are not reaching the toe of the bluff or structures. But offshore the down cutting is continuing to occur and the depth of water is increasing perhaps 0.5 m. This increase in water level is resulting in higher waves breaking, shifting the position of scouring further inshore, etc. removing the materials at the foundation of the structures. If it is an armour stone structure it will take a bit longer but the underwater erosion is still occurring. So over the long term the structures will fail. When the high lake level periods come the bluff toe is also unstable.
- Q: Is there a value that is assigned for wind erosion on the bluff?
- A: Wind is largely irrelevant on the bluff itself. On the bluff face, there are many factors – the effect of freezing and thawing, etc. – the wind is more of a factor in terms of wave generation.
- C: Noted by AC that in the area south of Grand Bend, the system changes completely and wind becomes much more a prominent factor.

A: Gully erosion also presents a number of different processes.

As noted by Robin, the shoreline itself evolves and there will be places along the shoreline where stability will come about and there may be places where underwater erosion is slowing down.

3.2 Potential Effects of Climate Change on the Coast of Southern Lake Huron

Dr. Robin Davidson-Arnott

Robin provided an overview of the potential effects of climate change on the coast of southern Lake Huron. He noted that a Discussion Paper has been developed and is available for download from the ABCA website.

There is general consensus among scientists that there is global climate change related to enhanced greenhouse gases. Predictions are made using various scenarios into the future and these depend on human actions and this results in a range of potential challenges. Global Climate Models are computer models that simulate the characteristics of the earth surface and lower atmosphere. In this application, they are used to compare the effects of different scenarios of atmospheric CO₂ on climate over the earth as a whole. Because the grid cell is 150-300 km, there is a need to downscale to give adequate representation for an area the size of the Great Lakes Region.

The spatial scale of Global Climate Models (GCMs) is too coarse to capture complexity of the Great Lakes Basin climate. There is, consequently, a need to make reasonable regional-scale predictions – this is a common practice.

Specific definitions were offered by Robin, as follows:

- *Weather* – describes processes in the atmosphere at, or close to the earth surface over a short period of time (hours to days)
- *Climate* – summation of weather over substantial period of time; decades to centuries, to millennia.
- *Climate Change* = changes in the statistical properties of climate variables over the period for which climate is defined.
- *Climate Variability* = describes fluctuations in the statistical properties of climate variables over the period for which the climate is defined

The dilemma is how to distinguish between a fluctuation in one direction and the start of a change in climate. As Robin noted, there is a plethora of information about climate change and adaptation to climate change. Several references and resources were provided.

The simplest approach is to look at changes in temperature. The data suggests that there has been a temperature increase of 1-2 degrees C over the past 60 years in the Great Lakes Region.

The increase is larger in the north part of the region. There is a greater increase in minimum winter temperatures than increase in maximum summer temperatures. These trends are expected to continue through the end of the century with mean temperatures increasing by 2-7 degrees C in southern Ontario and as much as 6-8 degrees under some scenarios. The number of frost free days will increase significantly and there will be greater frequency of extreme heat alerts. As Robin noted, there is generally a high degree of confidence in the projections. The increased temperatures will influence the temperature of lake waters, stratification and the overturning of the lake (e.g. timing of turnover). It will likely lead to increased evaporation.

Robin provided an overview of anticipated changes in precipitation. He noted the following in particular:

- Confidence in these projections is generally much lower than for temperature
- Possible increases up to 20% by the end of the century – more in the northern regions
- Decrease in the proportion of precipitation falling as snow
- Decrease in lake effect snowfall except mid- to late-winter
- Increase in heavy downpours.

There will be a number of changes in storms and winds but there is, as Robin noted, relatively low confidence and impacts along the shoreline will be small given that we are dealing with a 'fixed lake basin' – e.g. Lake Huron has a fixed size.

Robin outlined impacts as follows:

Potential Area of Impact	Potential Details
Lake Level	Increase in temperature and decrease in ice cover should lead to increased losses through evaporation from lake and evapotranspiration from basin and thus lower mean lake level. May be compensated for by higher precipitation, particularly over northern regions. The seasonal cycle may be altered with lower level at end of summer and higher level in winter.
Ice Cover and Wave Climate	<p>Little useful information on storm frequency and intensity – some suggestion of decreased frequency but increased magnitude. There is very low confidence in predictions.</p> <p>The most important impact on wave climate will be a reduction in ice cover during the winter – period with intense storms and strong winds.</p> <p>Predicted increase in air and lake temperatures in the 21st century will lead to further decreases in the extent and duration of ice cover on Lake Huron.</p> <p>Predictions are for ice cover to continue to decline rapidly. Will lead to an increase in the total annual wave energy. Effect may be magnified because these periods are often associated with more intense storms than in the middle of the year. Will have significant implications for nearshore sediment transport and wave erosion of cohesive shores.</p> <p>Net southerly transport will continue in ABCA because of location at south end of the lake. Magnitude of total sediment transport will increase. Magnitude of net southerly longshore transport may also increase. May lead to a decrease in beach width in erosional areas.</p>

Potential Area of Impact	Potential Details
Littoral Drift Magnitude and Direction	<p>Net southerly transport will continue in ABCA because of location at south end of the lake.</p> <p>Magnitude of total sediment transport will increase.</p> <p>Magnitude of net southerly longshore transport may also increase.</p> <p>May lead to a decrease in beach width in erosional areas.</p> <p>Recent improvements in modelling using Delft3D and development of algorithm to model effects of ice on wave propagation may permit modelling of this.</p> <p>Work in progress by Manson shows increase in total sediment transport off north shore of PEI shows increase up to 50% if ice disappears completely – likely similar magnitude for southern Lake Huron.</p>
Erosion of Cohesive Bluff Shorelines	<p>Reduced ice cover and increase in number of storm events will also lead to enhanced rates of erosion of till in nearshore due to abrasion</p> <p>This will increase wave erosion of bluff toe and thus increased rate of bluff recession</p> <p>The magnitude of increases is likely to scale with the increase in wave energy and an estimate can be generated from the predicted pattern of decrease</p> <p>Can expect increase of 10-20% over next few decades in nearshore downcutting – net effect depends on whether lake level remains the same or increases</p>
Aeolian Sand Transport & Dune Stability	<p>Reduced snow cover and increased wave activity during the winter may lead to an increase in the potential sand transport into the foredune zone.</p> <p>May be offset by wetter winters and erosion by storm waves.</p> <p>Little impact on pioneer plant communities because of dominant effect of sand burial and tolerance for dry conditions.</p> <p>Existing setbacks should be able to accommodate any small changes.</p>

Questions:

Q1: I haven't heard much about tree cover. Clearly we had much more tree cover in years past than currently. Do these models take tree cover into effect and the resulting impacts on erosion?

A: Yes in the models they factor in; farm vs forest, change and exchange of heat, the models that take surface conditions into effect. The short answer is that yes we have affected the climate around the Great Lakes because we have cut down so many trees. There are some who have studied this locally and have examined a treed Don Valley in Toronto and areas outside for example, so that you can measure differences but the scale that we are looking at is much more aggregate.

Q2: There are some who say climate change isn't happening at all. Donald Trump is one of them. The argument goes something like this but they are saying that the average global temperature has not increased in the last 15 years or so and that the CO2 emissions have increased as predicted but temperatures haven't followed. They are saying that at

a minimum this is much more complicated than we currently understand but the relationship between GHG, CO2 and rising temperatures appears in the short term to be not as predicted.

A: Evidence is now that temperatures have increased and there are a number of different indicators that are depending not on whether the measuring station has become more urban, etc. A very good indication is the change in ice cover. The ice cover is reflecting a regional change in temperature (e.g. change in Arctic ice cover). The other is to look at changes in temperature in boreholes. Over the last 30-40 years, you can see the warming front moving down into the profile – evident in Canada and even in Russia. There is evidence that temperatures are increasing in the northern hemisphere. I am happy with the level of technical evidence that indicates climate change is occurring and the link to CO2 – most of the scientists on the IPCC Panels in earlier years are saying ‘proceed with caution.’ That perspective has changed and the science community is now saying with affirmation that this is occurring.

Q3: In calculating change, what do you think of the impact of human activities? What effect is human intervention having on lake levels?

A: There is the Ogoki Diversion and the Chicago Diversion – other than these, there are a few small diversions but basically what is coming into the Great Lakes is going out.

C: Your explanation at the start of the presentation was excellent. These are pieces of rocks that have been glaciated on the shore of Lake Erie. These are fossilized coral. We live in an area of glacial till so at some time, glacial till was transporting coral. Your explanation was extremely helpful. I am still a little bit of a sceptic and I would recommend that everyone read “Apocalyptic Planet – The Ever Changing Earth” and offers an excellent perspective.

A: At that scale, you are dealing with a different level of process.

3.3 Structures in the 3:1 Zone

Alec Scott

Alec provided an overview of an issue relating to slope stability that has been brought to the attention of the ABCA by the Consulting Team. Alec made reference to the Briefing Note that was prepared to document the issue and provided a synopsis of the technical details pertaining to 3:1 and the provincial approach. (See Briefing Noted attached as Appendix A). Alec noted that the 3:1 is considered stable – for every 1 metre up, you are required to have a 3 metre setback; this is determined by the province and is based on subsurface properties. As noted by Judy Sullivan, geotechnical experts from across the province met to discuss the actual data and it was determined by experts, consultants and academics who landed on the 3:1 as a general rule indicating that this is a general provincial policy. If you are within that 3:1 and you want to do a site specific study, you can determine for your specific property if it is more or less than the 3:1.

Investigating the degree of risk was not part of the scope of work assigned to the Consulting Team. When the consulting proposal was submitted, Terraprobe was identified as the sub consultant to be retained if there were seismic or geotechnical issues. Terraprobe is proposing a two-phase approach and the details of each phase was offered by Alec.

ABCA completed an initial assessment of the number of structures that are affected. It was noted that the results are from a GIS exercise with no field verification. The results of that ABCA review were shared as follows:

Distance to Top of Bank	Total Number of Dwelling Units	Total Number of Accessory Buildings/ Structures	Total Buildings	Additional Comments
5 m	108	126	234	Structures within 5 metres of the top of bank are <i>generally scattered along the shoreline</i> rather than being clustered in specific subdivisions.
10 m	153	55	208	Structures within 10 and 15 metres of the top of bank are <i>generally clustered in specific subdivisions</i> rather than being scattered along the shoreline.
15 m	274	83	357	

Alec outlined three options as well as the pros and cons associated with each:

1. Do Nothing to address the concern
2. Do Something to address the concern
3. Do Everything to address the concern

Questions & Discussion:

Q1: Would the results of the Terraprobe study affect ABCA permitting?

A: It could.

C: If there are other activities that a geotechnical firm comes up with or identifies through a site-specific review, it is important to understand that you will likely require a permit from the ABCA but that there are other requirements relating to other legislation, etc. that will apply (e.g. building permits, etc. if the proposal involves substantial structural change.)

Q2: Under the regulations now, I have to get the structural [geotechnical] engineer to produce a report and then approach the ABCA to see what will be permitted. Under option 3, do I still have to retain a structural [geotechnical] engineer?

A: We will require landowner cooperation and what comes out will offer landowners a greater understanding of the degree of risk along the shoreline. This is about providing important additional information about site specific risk – both to landowners and to the CA and municipality.

- C: ABCA is not a popular organization along the shoreline because the organization focuses on what can't be done. This is the public perception – the ABCA is a regulator and is focused on telling landowners what they can or cannot do. You will need to address this perception if there is to be any success from this exercise.
- Q3: Would the Terraprobe study result in the Lakeshore Area 1 being reduced?
- A: AS - Generally the 3:1 would remain but there would be a subdivision of the 3:1 zone into different levels of risk, or at least that could be the approach that emerges.
- Q4: What would the additional study lead to in terms of the SMP? We know that there is a degree of risk in the Lakeshore Area 1 and we know that we don't want any more development in the Lakeshore Area 1. Identifying Lakeshore Area 1 is the focus but any additional level of detail is not required.
- A: AS – our regulation is about controlling new development. From a planning perspective, what is new has to be safe.
- C: It was noted that this is to address existing development, for the existing landowners that are already within the hazard, to inform and help understand the degree of public safety issues and the level of the hazards.
- Q5: Where is Lakeshore Area 1?
- A: In the bluff areas, Lakeshore Area 1 (LA1) is closest to the hazard. The whole shoreline has a high hazard (LA1) and a lower hazard. There are different kinds of hazards along the shoreline.
- Q6: What we are talking about are buildings that are already in Lakeshore Area 1. We are talking about existing dwelling but the most important are those who have not gone through a geotechnical study. There are a number of buildings that are under threat and we are looking at the level of risk. If we find that we have some high, medium and lower risk areas, what kinds of policy implications would this research have?
- A: The ABCA policies are already fairly restrictive in Lakeshore Area 1. This issue is one that relates more to public safety and emergency response rather than to policy. Right now if we have one structure at risk we have no evidence of how to react to this.
- C: Noted by TM that the initial ABCA assessment was done using mapping and there is no distinction made in the data between year-round and seasonal cottages. It is a quick risk assessment that is all.
- Q7: Terraprobe offered an unsolicited proposal. One of the comments in the proposal is that the municipalities would have to ensure that landowners would give access. Municipalities would not be in a position to ensure this. Are you not going to run into an issue here?
- A: Noted by AS that landowner access is an issue and so too is the perspective of the municipality. He intends to connect with the two affected municipalities - Bluewater and Central Huron in particular - to ask how do they feel about the issue and the proposal.
- C: Noted by JC that the issue of access is all about safety – it is no different than hydro or the gas company securing access to address a safety matter.

- C: A real problem here for the CA, municipalities and property owners – what about landowners who have structures in the hazard zone and they say they are going to do something about this – e.g. put a retaining wall at the toe of the bluff to stop erosion. I have seen SMPs (e.g. Kettle Creek, Catfish Creek) that do not allow shoreline management works in certain areas. This is something that this group needs to deal with before the SMP is approved.
- A: Yes, duly noted. The issue of shoreline protection works will have to be addressed. Noted by KW that a discussion paper is being prepared on shoreline protection works that will be based on the science. The role of the consulting team is to bring forward a recommendation to the Steering Committee for its consideration. The SC will either agree with the consulting team completely, partially or not at all and a recommendation will proceed to the ABCA Board of Directors who in turn will either agree with the SC completely, partially or not at all. The views of the public will be taken into account but the Steering Committee will have to weigh all of the evidence before it and so too will the ABCA.
- C: AM – We are dealing with emotional issues of cottagers who want to do what they want to do with their property.
- C: The policy position and approach must be based on science; not on emotion or an emotional response. Noted by KW that there are important considerations that municipalities must take into account given the municipal responsibility to issue building permits and the ABCA responsibility to issue or not issue permits.
- C: My opinion is that the ABCA if they like you will let you do certain things.
- A: Noted by DG that the ABCA is very clear about what they are looking for and that this is not the case.
- C: There are different approaches whereby you could say to the municipality that you have structures in the 3:1 and you are required to complete this study. Municipalities have the ability to do this. Are you not taking on a little bit of liability here?
- A: This is why the municipality needs to weigh in before this goes to the Board for decision.
- C: Another approach would be to let the Municipalities do this study. The Building Inspector is the one that has to come in to deal with the major issues in their area.
- C: Noted by KW that municipalities could carry out this study but it would not be done on a comprehensive shoreline basis and would not be carried out consistently by one company who specializes in this work. In addition, the existing SMP was written 20 years ago when the scale and scope of development was markedly different. The current SMP is vague in some areas and open to interpretation. What we need moving forward is a definitive document that provides very clear direction on what can be permitted and what cannot take place.
- Q7: If you can't get on to these properties in Phase 2, would the results not be compromised?
- A: The first phase is desk-top. The second phase you could still access the beach or public road allowances and the like so you would have a better idea than we do currently. Noted by JS

that Phase 1 would scope where the highest risk properties are located and there are properties that could be grouped together, and the number of properties identified, etc. The idea behind Phase 2 would be to get borehole information to recognize that existing study information may be available from neighbouring properties which may offer helpful insight and may not require that borehole testing be carried out for every property.

C: If this helps to support the policy, it is a good thing. If it is to address the mistrust and distrust, then it is a good thing. If it improves understanding and what is happening on our shoreline, then this will allow us to move forward and support some of the questions that we have about shoreline protection.

C: JC – I would never normally give regulatory authorities more latitude and responsibilities but in this case, I would want the ABCA to be able to speak from a position of authority. I would also hope that as a landowner that the ABCA has as much information as possible to use science to make a decision on policies for those properties that are in jeopardy.

Karen and Alec invited all Steering Committee members to vote on the options. Karen asked for individual Steering Committee members to vote on one of the following four options:

- Option 1: Do Nothing
- Option 2A: Do Something – Communicate Only (2A)
- Option 2B: Do Something – Communicate + Terraprobe Phase 1 only (2B)
- Option 3: Do Everything (retain Terraprobe and complete Phase 1 and Phase 2)

Voting Results

Option 1:	0 votes
Option 2A:	2 votes
Option 2B:	1 vote
Option 3:	6 votes

(Note: Alex as an alternate cast his vote for Option 3; George as an observer was absent for the vote, Burkhard was absent for the vote)

RECOMMENDATION: THAT THE STEERING COMMITTEE RECOMMEND OPTION 3 (DO EVERYTHING) TO THE ABCA BOARD.

3.4 Table of Contents

Karen provided an overview of the draft Table of Contents developed for the updated SMP. Several comments and suggestions were made:

C1: Suggest Include reference to the two county Official Plans, include reference to the area municipal Official Plans and consider including a reference to the Ontario Building Code Act

Q2: Is flooding an issue of concern along a shoreline?

A: Yes – there is a provincial policy position associated with shoreline flooding. The difference between rise in lake levels and flooding was explained by RDA.

3.5 Community Survey Results:

Tim provided an overview of the results of the community Survey and noted the following in particular:

- Issues that are top of mind include water quality, bluff and beach erosion and environmental degradation.
- 54 people out of 68 ranked water quality as an issue of high importance
- Many issues were identified that were geographically specific and general in nature
- Many areas of specific concern were also identified

3.5 Community Engagement

Karen provided an overview of the community and stakeholder engagement process that had been followed to date. She summarized the work completed to date including the development of the FAQ, two Community Newsletters, Community Survey

Q1: Does the Board of Directors receive the same level of information and detailed presentations that we receive?

A: No, the Board receives a summary.

Q2: Will the public receive detailed information and presentations from the professionals?

A: Yes, that is the intent so that the public can understand the science and how the science has been used to support the policy position that is being proposed.

Q3: How much time does the SC require to review the draft document?

A: One month would be great.

C: Noted by KW that we will work to provide as much lead time as possible recognizing that we have a commitment to produce an updated document for ABCA as provided for in our contract. A shorter review time may be required in order to meet our timeframe for delivery.

Comments & Questions:

C1: Consider making individual presentations to Municipal Councils in June when the first draft of the SMP update is available.

A: Noted that individual Municipal Council presentations is not part of the consultant scope of work. ABCA to coordinate and make the Council presentations.

C2: When convening staff-level dialogue with watershed municipalities, be certain to engage municipal planning and building staff.

C3: Provide early notice to community members about the August meetings.

C4: Early August is the best time for community meetings.

C6: Be certain that notice of Council presentations and community meetings is provided to community organizations and associations.

Q7: If Terraprobe work goes ahead would it slow down the SMP update?

A: The Terraprobe work would be a piece of the Plan that will provide more detail. The SMP Update could move forward without this piece and be treated separately with that component of the SMP update being left until the Terraprobe work is complete, or it may result in an alteration to the SMP delivery. These details will have to be determined once it is known whether Terraprobe will be retained and the scope of any tendered contract that is awarded.

Several points of agreement were reached:

- Two (2) community information sessions will be held – one for bluff and one for dynamic beach
- Target early August if possible
- Ensure the meetings are scheduled well in advance to allow all with an interest to attend
- Some discussion about the importance of convening meetings with community associations but it was suggested that instead of separate meetings, that notice of the community meetings should be sent to community association points of contact (Note: Project Meeting with Consulting Team & ABCA staff landed on August 20th as a potential date). Advance notice to either be provided to local newspapers or advertisements placed directly in the local newspapers; venues to be booked. Consider two meetings – one from 9 a.m. – 12 noon and a second from 1 p.m. – 4 p.m. or 2-5 - same day; Saturday in August.
- ABCA to convene meetings with interested lakeshore municipalities once the draft SMP is available.
- It was suggested that building staff from the lower tier be included in these presentation (e.g. renovation departments, planning assistants, front line people), they should be brought in as it is important to have them involved in these meetings.
- Noted that Bluewater may like to have a Municipal Council presentation – AS to organize once the draft SMP is available to share
- One meeting with municipal planning and building staff should be held in June – to discuss the approach and to secure input from municipalities about policy and the approach that works best for them – need to consider the policy approach collectively so one meeting for all municipal staff.

4.0 Recap, Wrap Up & Next Steps

Karen provided a brief overview as noted that the Steering Committee meeting minutes would be distributed in the next week or so. Several important follow up items will be attended to:

- AS to consult with the two municipalities affected re: structures in the 3:1.
- ABCA Board to receive SC recommendation.

Next SC meeting to be convened in June. Date to be confirmed. Key agenda items for the next Steering Committee meeting to include:

- Overview of Draft SMP
- Shoreline Protection Works Discussion Paper
- River Dredging Discussion Paper
- ABCA Board of Directors decision regarding Terraprobe

Meeting Concluded: 2:30 p.m.

Appendix A
Briefing Note

Structures Within the 3:1 Stable Slope Allowance

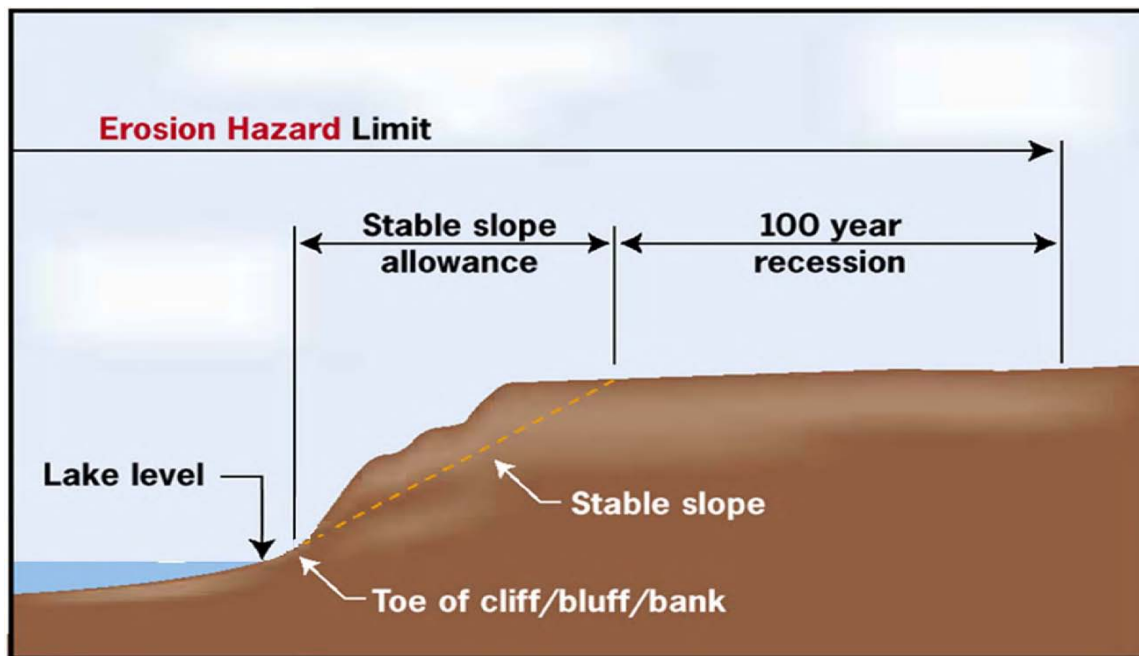
STEERING COMMITTEE DIRECTION REQUIRED

The Issue:

Whether and how to address potential significant concerns about the number of structures currently located in the Lakeshore Area 1, north of Grand Bend. **A recommendation by the Steering Committee to the ABCA Board of Directors is required.**

Background:

After a field review of the ABCA shoreline, the consulting team has expressed significant concern about the number of dwellings that were within Lakeshore Area 1 in the bluff area north of Grand Bend. Lakeshore Area 1 was defined in the 2000 SMP as the area lying within a 3 to 1 stable slope allowance and the 100 year flood hazard. The following schematic provides a visual representation of the Erosion Hazard limit.



The extent of Lakeshore Area 1 was defined more than 20 years ago. Since that time, the nature of development along the Lake Huron shoreline has changed dramatically with increasing demand for shoreline property. Changes to the average annual temperatures in the region as a result of climate instability have impacted lake temperatures, lake effect snowfall, winter ice cover and fish habitat. A longer ice-free season will increase the number of storms associated with large waves and storm surges and this in turn will drive larger volumes of longshore sediment transport and an increase in the downcutting of the nearshore and erosion of the bluff toe along cohesive shorelines. An increase in the

erosion of the toe of slope areas is evident and as a result of this evidence, members of our consulting team have recommended that further investigation be carried out to assess the level of risk that these buildings may be exposed to.

A detailed investigation of the degree of risk was not part of the scope of work assigned to the consulting team who are continuing their efforts to update the Shoreline Management Plan. The original submission from our consulting team did indicate however that if this issue arose in the context of their work, that a sub-consultant would be retained and Terraprobe was identified in the original Proposal submission.

ABCA requested an unsolicited proposal from Terraprobe in order to secure a better understanding of the additional cost involved. **A copy of the unsolicited proposal is attached.** The unsolicited proposal from Terraprobe was submitted to ABCA in March 2016 and recommends a two-phase approach as follows:

Phase 1: A desktop review of the available information (topographic maps provided by the client, aerial photographic data and published geological subsurface information comprising shoreline slopes) and consultation with Aqua Solutions 5 Inc. to identify the Areas of Concern within the study limits requiring further assessment.

Phase 2: A higher level review of the available information for the Areas of Concern in conjunction with site visit, slope mapping, site measurements of the setbacks of selected structures from the existing crest, and consultation with Aqua Solutions 5 Inc., to categorize zone of Significant (Zone of Pending Failure) and Zone of Higher Slope Instability Risks.

In order to follow up on the concerns raised by our consulting team, ABCA completed an initial GIS review of the structures that are lake ward of the 3:1 stable slope. **Please note – this consisted of a mapping exercise only and has not been validated with on-site field work.** This work was carried out in April 2016 and the following general findings have emerged from this initial review:

- There are approximately 1000 structures within Lakeshore Area 1 in Bluewater and Central Huron in the ABCA watershed. Approximately 400 of these are accessory buildings and approximately 600 are dwellings.
- Details about the approximate number of dwelling units and accessory buildings that encroach within 5 metres, 10 metres and 15 metres of the top of bank are summarized in the following table:

Distance to Top of Bank	Total Number of Dwelling Units	Total Number of Accessory Buildings/ Structures	Total Buildings	Additional Comments
5 m	108	126	234	Structures within 5 metres of the top of bank are <i>generally scattered along the shoreline</i> rather than being clustered in specific subdivisions.
10 m	153	55	208	Structures within 10 and 15 metres of the top of bank are <i>generally clustered in specific subdivisions</i> rather than being
15 m	274	83	357	

scattered along the shoreline.

Moving forward, there are several options that the Steering Committee needs to consider. These include:

1. Doing nothing to address the slope stability issue;
2. Doing something to address the slope stability issue (e.g. communicate to landowners or begin some initial investigation of areas of concern or a combination of the two); or
3. Doing everything to address the slope stability issue (e.g. retain Terraprobe to complete a detailed investigation of areas of concern as well as specific structures that are at risk).

More information about each of the options follows.

Options:

1. Do nothing – Take no action to investigate the degree of risk and carry on with the SMP Update.

Pros	Cons
No additional cost to ABCA.	Does not provide ABCA or landowners with required information about the level of risk.
Allows the SMP to proceed as proposed.	

2. Do something (either 2A, 2B or a combination of A & B):

A. *Communication & Awareness:* As part of the SMP project, communicate the slope stability risks to shoreline property owners and educate property owners and municipalities. This would include a press release on the current erosion and slope stability risks along the shoreline as well as the development of an “Early Warning” Fact Sheet for shoreline bluff property owners. The Fact Sheet will be developed by Terraprobe and will provide information about the early warning signs that property owners should be looking for that may indicate slope stability issues and concerns. Please note: a Press Release has already been issued by ABCA. In addition, ABCA provided direction to PSI on May 4th confirming that Terraprobe is to be retained to complete the Landowner Fact Sheet. Estimated cost for the Fact Sheet = \$1200.00 - \$1500.00. Work will commence immediately to develop the Fact Sheet.

B. *Initial Investigation:* Carry out an initial assessment of the degree of risk based on the scope of work define in Phase 1 of the Terraprobe proposal. Estimated cost = \$10,000.00 plus applicable taxes.

Pros	Cons
Would enable ABCA to provide important but generalized risk-based information to landowners and community members.	Does not provide specific details or information regarding the degree of risk on a property specific or area wide basis. Would not define the limits of any areas currently at immediate risk.
The initial investigation option would provide additional insight and information for ABCA, municipalities and landowners regarding the degree of risk.	Does not provide a detailed assessment of areas of concern.
	Requires additional funds to be allocated either for the development of the Fact Sheet or the Phase 1 assessment.
	May impact timing for delivery of updated SMP.

3. **Do everything** – increase the scope of the current consulting contract to include the detailed assessment (Phase 1 and Phase 2) by Terraprobe. Additional cost = \$29,000.00 plus applicable taxes.

Pros	Cons
Would provide ABCA, municipal partners and landowners with comprehensive information about the degree of risk.	Requires additional funding.
Would provide solid evidence to support an updated policy platform.	
Would ensure that all parties (including community leaders, landowners and regulators) have the same updated information.	May impact the timing for delivery of the updated SMP.

Action Required:

The SMP Steering Committee needs to make a recommendation to the ABCA Board of Directors regarding the most appropriate option.

Prepared by: Alec Scott

Dated: May 3, 2016