



Living By Water Norris Beach Consultation Report

File #: FAN-2011-003

Location: Norris Beach Reserve Lots

Living by Water aims to encourage shoreline (or “near-shoreline”) residents to allow their properties to remain as natural as possible, while still being able to utilize the area aesthetically and for recreation purposes as that resident so chooses. Often more time than necessary is spent mowing lawns and doing maintenance, and this time could be better used enjoying these lakeshore spaces. The same principles that we often discuss with shoreline residents are applicable to shared spaces within a summer village such as the reserve lots located within Norris Beach. As the reserve lots in Norris Beach are both directly on the shoreline and near the shoreline all the actions that occur in these spaces affect the health of the lake. Key issues to be addressed in this report include runoff, invasive plant species, and naturalizing.

Pigeon Lake: Background information

For recreational purposes, Pigeon Lake is one of the most popular lakes in Alberta, which means there are a lot of potential effects on both your property and the lake community. Another aspect of its recreational reputation is the fact that Pigeon Lake also has two provincial parks located on it: Ma-me-o Beach and Pigeon Lake Provincial Park. Sport fishing for Walleye, Lake Whitefish, Northern Pike and Yellow Perch is common, though portions of the Pigeon Lake Creek prohibit fishing in the spring for spawning. Whitefish populations have recently become significantly smaller in body size than in previous generations. This decline in body size thought to be linked to a diminishing population of their predators—Walleye and Northern Pike — due to removal of aquatic vegetation by developers and cottage owners. Pigeon Lake is home to many nesting colonies of terns and gulls which can easily be disturbed by the wakes from high speed motorboats and cleared shorelines. In recent years, Pigeon Lake has been experiencing higher than average occurrence of algal blooms. The majority of the algae appear due to high levels of phosphorus in the lake, and this phosphorus also plays a key role in maintaining the blooms once they have been established. The high phosphorus levels in Pigeon Lake are mainly a result of fertilizer run off and other land use by-products, with concentrations peaking in late August.

Summer Village of Norris Beach Reserve Lots

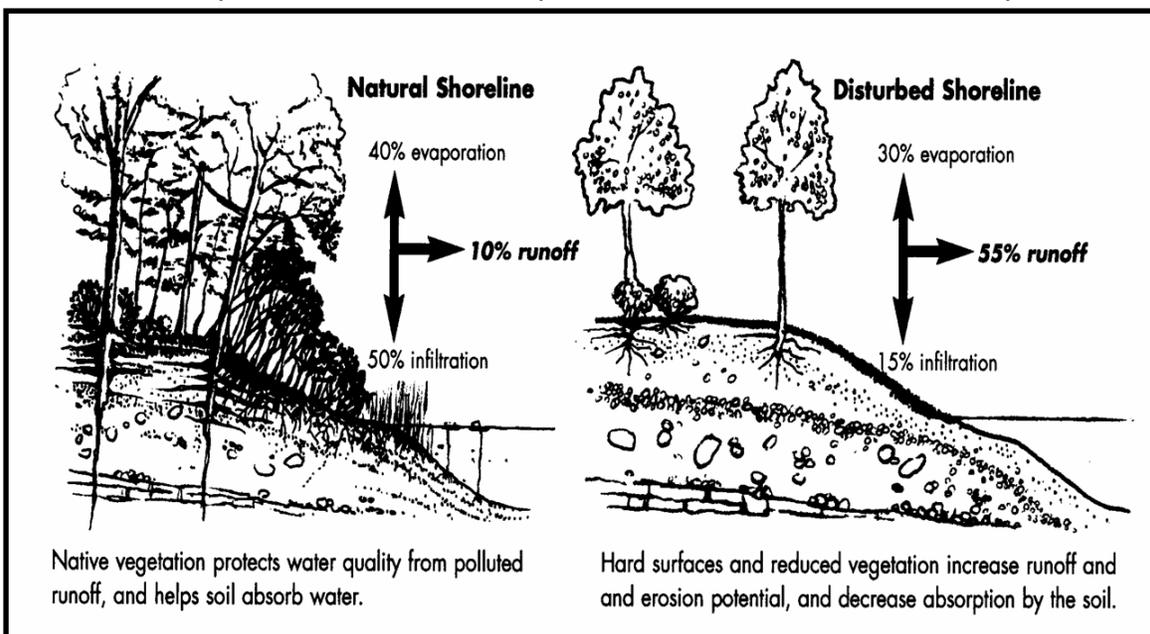
Overview:

A follow up of the reserve lots of the Summer Village of Norris Beach were assessed by Shoreline Advisor Laura Edwards on July 13, 2013, with the assistance of Brian Keeler. The original assessment was completed during the summer of 2011 with Shoreline Advisor Kim Ferguson and deputy Mayor of Norris Beach Bruce Fowlie. The Summer Village of Norris Beach has made great efforts to follow recommendations given in 2011's report and great improvements have been made. The village has a greater focus and understanding of invasive weeds, shoreline stabilization, and outreach to residents, evident by the efforts made by the summer village since the initial consultation.

Waterfront Reserve Areas in front of Properties: R3, R5, R10

These reserve areas are located in the front of residents "Shoreline" properties. Residents against these reserve lots take responsibility for these spaces and any development must occur within the guidelines set forth by the summer village and other governing bodies. These reserves are also understood to be public space.

It is very important to have lots of native vegetation along the shoreline. Shoreline vegetation is critical for a healthy lake. Vegetation stabilizes the shoreline; the roots hold the soil together and absorb wave energy reducing erosion from runoff, wave action, and ice. Shoreline vegetation is also critical for improving water quality and providing valuable fish and wildlife habitat. Vegetation slows down the velocity of runoff over the land and into the lake, increases water infiltration time, and filters out nutrients carried by runoff. Each of these functions serves to improve water quality by reducing the amount of sediments and nutrients that enter the lake. Additional nutrients entering the lake, especially phosphorous, encourage blue green algal blooms. Blue green algae removes oxygen from the lake causing fish to die and these algae produces toxins that are poisonous to humans, pets, and wildlife. Sediments are poisonous



to fish and kill aquatic plants by blocking out the sun and carry nutrients to the lake that promote algal blooms.

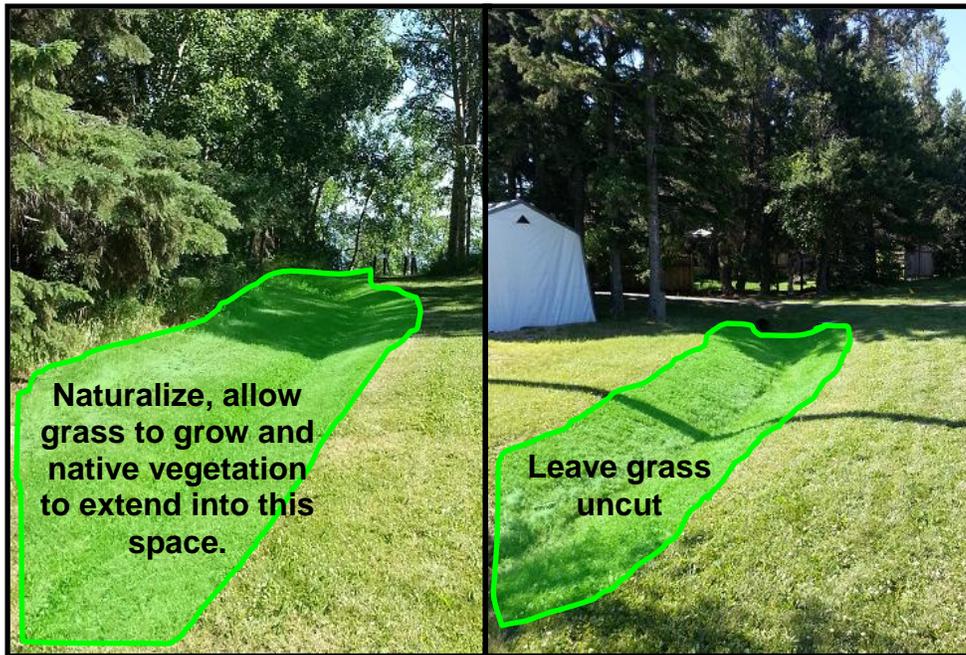
Many residents are doing a fantastic job of keeping the reserve in front of their home natural creating a splendid buffer between their homes, the village, and the lake. However some residents have removed the native vegetation in this space in favour of installing a lawn and a hardened structure, usually rip rap. Lawn serves no biological function and residents should be discouraged from maintaining lawn right next to the lake. The hardened structures present on many properties increase erosion underneath and to the sides of the structure as the energy from the waves is repelled from the hardened surface and has nowhere else to go. Where hardened structures have been installed residents should be encourage to allow them to “soften” by letting native vegetation grow through and around the structure and natural debris to collect here. The vegetation and debris will absorb wave action rather than reflecting it.

It is not certain how many residents still use fertilizers and pesticides on their property. This practice should be discouraged. Fertilizers and pesticides are dissolved by precipitation and move into the lake via ground and surface runoff. Fertilizers contain nutrients that plants need for growth; this is why residents use these products on their lawns to stimulate lawn growth. However fertilizers also feed the lake and encourage the growth of blue green algae. Residents who use fertilizers on their lawns who are next to the shoreline are essentially dumping the fertilizer directly into the lake. Pesticides are toxins designed to kill living things, when these move into the environment and the lake they are responsible for the death of wildlife. Both pesticides and fertilizers negatively effect the quality of water in Pigeon Lake.

The village has made efforts to inform residents who do have natural shorelines that they are making positive choices for the health of the lake; this is wonderful! To better educate residents, especially individuals along the shoreline, it would be beneficial to encourage them to have a homesite consultation done with us. Including some of this information in newsletters and public outreach initiatives will also get the information to residents and reach a wider audience, including those whose shoreline may be more degraded and in need of attention.

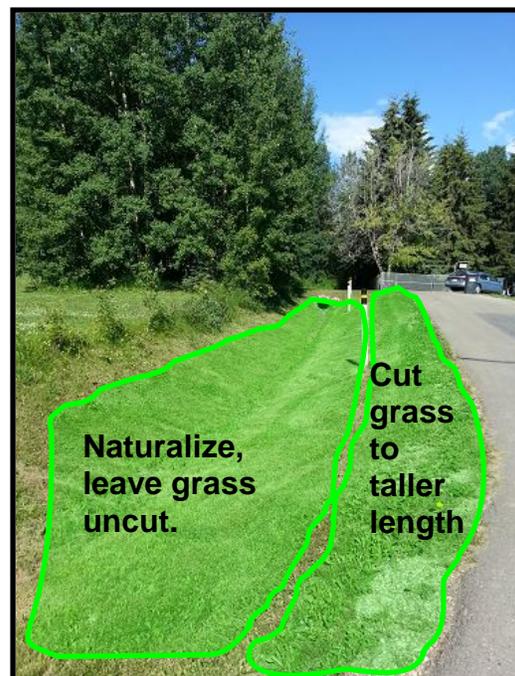
Reserve Areas from lakeshore to Marine Drive: R2, R4, R6, R7, R8, R9

These spaces start off only a couple meters wide at Marine Drive and widen up to 18m as they move to the shoreline. Many contain native vegetation while others are maintained mowed spaces. These are responsible for filtering runoff water collected in drainage ditches and leading this water into the lake. R6, R7, and R8 are very similar. These are maintained open spaces with lawn that is mowed regularly and drainage ditches leading directly towards the shoreline. Some native shrubs are left along the sides of the reserve leading up to the waterfront reserve spaces. Shoreline access from these spaces usually consists of curved pathways leading to the shoreline. The shorelines in these spaces (except for R7 and R8 which lead onto R10) are well buffered and full of native vegetation. In these reserve lots it would be very beneficial to allow the area next



to the ditches to naturalize. Talk to the contractor responsible for mowing these spaces and encourage them to leave a space of 1m on either side of the drainage ditch unmowed. As the ditches gets nearer to the shoreline it is also located next to a wealth of native vegetation; a goal for these ditches would be to naturalize the lawn space between the ditch and the native vegetation next to the reserve. Encouraging lawn to grow longer and naturalizing the space next to the ditch will encourage water from the runoff in the ditches to infiltrate into the ground and increase natural filtration of this water. The village has encouraged vegetation to grow in the ditches and understand the benefit of having vegetation here for filtration. It would be even more beneficial to mow the grass to a higher length next to all of the roads to further reduce water velocity of the runoff moving off of the roads and increasing the infiltration of this water into the ground.

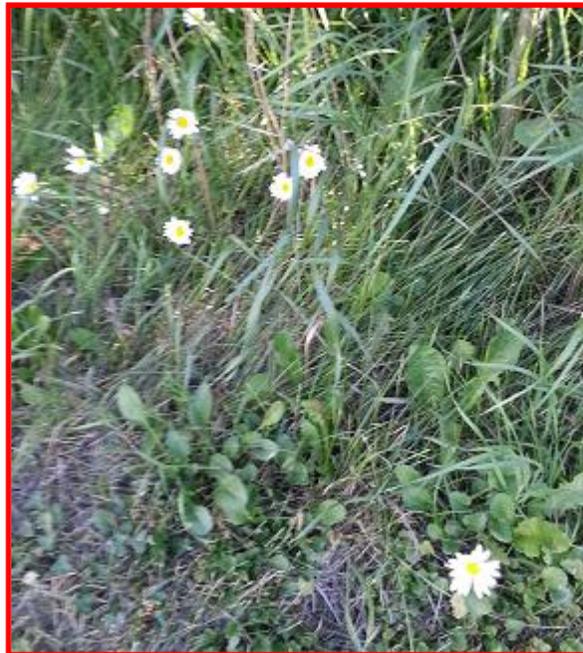
R4 and R2 are especially well buffered and the majority of these reserves have been completely naturalized; clear efforts have been made to maintain these areas as natural spaces. The centennial project in R4 was a great initiative by the village and has resulted in a great naturalized space that is still available for residents to use. This is a wonderful example of how to manage a natural space while still making it available for public use! The majority of R2 which backs onto Paul Norris' lands is also very natural. Maintaining these natural spaces along the shoreline and in the path runoff from the village drainage



ditches increases the capability of the riparian area to filter the water before it reaches the lake and increase infiltration into the ground. Additionally, the village has made efforts to remove invasive weeds occurring in R2 and they have made efforts to stabilize the shoreline next to the creek by installing native plants and moving the pathway away from the shoreline. This is great to see! I recommend that the village continue to stabilize the shoreline along the creek by encouraging native vegetation to grow here and that invasive plants continue to be monitored and removed. The village has planted some Saskatoon's along the shoreline to encourage naturalization. I recommend live staking some dogwoods and willows in this area as well as these plants are already growing in the area and should do well here. I have included instructions for live staking with this report. Beside the creek there are many thistles growing as well as some Oxeye Daisy near the mouth and Perennial Sow Thistle near the shoreline. Continue to work hard to mechanically remove these invasive plants. Oxeye Daisy was also spotted in R6. Residents should be informed that Shasta Daisy is a cultivar of Oxeye Daisy and these are the same plant. Oxeye Daisy is a noxious weed and should be removed from resident's properties. There are no native daisies in Alberta. You mentioned another plant occurring in these areas that you were worried about especially in R2 and R4, this was Cow Parsnip, a native plant that should be encouraged to grow in these spaces.



Cow parsnip, native.



Oxeye (Shasta) daisy, invasive.

The remaining area of R2 that extends to Marine Drive is an open lawn space with some large native shrubs. The village has indicated that they would like to maintain this area as it is as people use this space for recreation. Given the presence of the large buffer zone between this space and the shoreline and the large number of healthy native shrubs growing here leaving the space open for villagers use is a positive use of this area.

Reserve Areas A and B

Reserve lot A is located at the tip of R2 and is a landscaped area with large native shrubs. This space is part of the road allowance and cannot be used as a park. The village hopes to maintain this space as kids use it. Reserve area B is completely natural and the village should maintain this space as such as it filters water on the swamp lots adjacent to it and will filter the water that will run off of the new Silverwoods development.

Conclusion

Below I have summarized the main points discussed above and outlined additional steps that the Summer Village of Norris Beach can take to improve the overall environmental stewardship of the community.

- Provide information to residents about the importance of native vegetation along the shoreline. Encourage residents who have installed lawn and hardened structures to naturalize the shoreline space and allow the hardened structure to soften. Residents should also be made aware of the harmful effects of fertilizers and pesticides and be discouraged from using these products on their properties.
- Continue to work on removing and minimizing the presence of invasive plants within the reserve areas. Inform residents that Shasta Daisy is the same plant as Oxeye Daisy and that they should not be planting them on their properties.
- Mow the grass to a higher height next to the roads to reduce the velocity of runoff and increase the amount of water that infiltrates into the ground and is filtered by vegetation.
- Naturalize the space next to the ditches in R6, R7, and R8. Start this process by leaving the space next to the ditch unmowed.