

Shoreline Modification / Erosion Control

What is the Issue?

Shorelines can be fragile areas. Normally, unaltered shorelines have enough **vegetative** structure to withstand significant damage from natural forces. This can change when people alter the shoreline area by removing vegetation from the land and the water. Erosion can result.

An eroding shoreline can contribute to increased siltation into the lake, loss of habitat, and, eventually, loss of property. Property owners can see they are “losing” land. They may be inclined to “fix” the problem. If employed, erosion control solutions must be designed appropriately to avoid creating new problems.

Councillors should be well informed on the value of natural shorelines and the benefits they offer. Sharing of this information with the Summer Village residents will promote the retention of natural shorelines and their use in effective erosion control.



Photo credit: Alberta Sustainable Resource Development

Background

The shoreline around the lake is subject to natural erosion from wave and ice action. The characteristics of the shoreline have developed over a long period of time and if left unaltered, they have enough **vegetative** structure to withstand these forces. The vegetation found on the shoreline – in and out of the water – dampens the energy of wave action and can even protect against ice scouring. Willows, for example, will bend under the pressure of incoming ice, while holding the soil of the bank in place.

Modifying the Shoreline Can Aid Erosion

The potential for erosion and loss of property is significantly increased when people modify the lake shore and bank by removing deep rooted native vegetation that would otherwise hold bank soils in place, or remove aquatic emergent vegetation from shallow water where it dampens the energy of waves. Landscaping that clears and converts all native vegetation into turf grass lawns, harrowing exposed lakebeds, and regular ATV use on and near the shore can also result in an increased potential for erosion.

In addition, excessive boat speeds near shorelines can create large boat wakes, and the generated waves can also significantly impact shorelines, particularly if they occur frequently.

Protecting Against Erosion

Erosion is normally more of a problem during high water years, but can occur anytime. Where bank erosion is ongoing, active intervention may be required using erosion control measures to stop further loss. Various methods are available to control shoreline erosion. These include re-shaping mildly eroding banks, re-vegetating sloped banks, re-establishing washed out shorelines, and providing protection with armoring material, such as rock rip-rap, gabion baskets, and retaining walls.

Provincial agencies are increasingly reluctant to grant permits for “hard” solutions to erosion, such as armoring, unless absolutely necessary. Armoring would likely only be approved where the potential for erosion is very high. In most cases, natural vegetation will address erosion issues while maintaining wildlife habitat, reducing sediment flow into lakes, and protecting water quality by filtering and removing a variety of materials that are picked up by water as it flows over land.

Keep in mind that self-designed erosion control measures are often inadequate or poorly constructed, and will not produce the desired outcome. They become an ongoing project that may cause erosion problems for adjacent properties, negatively impact the aquatic environment, or result in the loss of the shore area entirely. It is therefore critical that expert advice be sought to appropriately plan measures that will be effective.



Photo credit: Alberta Sustainable Resource Development

What Does the Law Say?

Controlling shoreline erosion is subject to the requirements of the Public Lands Act (administered by the Public Lands and Forests Division of Alberta Sustainable Resources Development) and the Water Act (administered by Alberta Environment).

On Private Land

In some cases lakefront property owners are able to take measures to prevent loss of property from erosion, without a permit. This common law right, however, is not absolute and is subject to the following:

- Erosion protection works must be confined to private property, (encroachment on the Crown' lakebed requires prior authorization); and,
- Construction of the works may be subject to other regulatory requirements such as development permit requirements from the Summer Village or approval from federal and/or provincial agencies (if the work will affect the bed and shore or water of the lake).

On Public Land

Anyone planning to modify the beds or banks of any body of water in Alberta must obtain provincial approval from Public Lands and Forests Division and Alberta Environment, prior to proceeding with the work. Authorization may also be required under the federal *Fisheries Act* and the federal *Navigable Waters Protection Act*. Shoreline modification could affect fish habitat, and this aspect of the Fisheries Act is administered by the Department of Fisheries and Oceans. Transport Canada administers the *Navigable Waters Protection Act*.

What Can I Do?

Know Who Owns What

Councillors should be aware of where property boundaries are in relation to the bank of the lake, including those of Reserve parcels. These boundaries generally determine the jurisdictional responsibilities for regulating activities at a lake. An up-to-date copy of the registered subdivision plan(s) for the Summer Village should be available for consultation purposes. Contact your Summer Village's Development Officer for property boundary information, and to determine if the municipality issues development permits for work done on private land.

Advising Summer Village Residents

Provincial legislation requires that anyone planning to modify the beds or banks of any body of water must obtain approval. Councillors should be able to advise their constituents on whether permits are needed for specific erosion control measures.

Summer Village councillors should familiarize themselves with the various methods available for controlling shoreline erosion. They could advise their residents on the benefits of a natural shoreline with respect to erosion protection. In the event that shoreline vegetation is not effective hard solutions may need to be considered.

To ensure that constructed erosion control work does not fail or negatively affect the environment, landowners should be advised to consult a professional engineer (APEGGA regulated). The professional can assess the wave environment and erosion potential of the site, and advise or design the most appropriate shore protection works for the site's environmental conditions. Landowners should also discuss their plans with neighbours to limit potential conflicts.

Erosion Control on Municipal Land

If a Summer Village wishes to construct erosion protection works to prevent the loss of environmental reserve lands, they should similarly obtain the necessary approvals from Alberta Environment and the Public Lands and Forests Division of Alberta Sustainable Resource Development.

If You See Construction Work On or Near the Shore

General guidelines when dealing with a resident who is doing some type of construction on the shore of the lake:

- Ask the resident to produce a permit. It is required to be on-sight during construction.
- If there is no permit, explain the legislative requirements and violation consequences. Provide the resident with contacts.
- Describe the impacts on the lake the activity may be having and provide relevant educational materials.
- Advise the resident to stop the activity. If the work is on an environmental reserve, consider issuing a Stop Work order.
- Contact regulatory authorities, if the resident refuses to comply.

Regulating Boating Speeds

To regulate specific boat speeds on a lake, or part of a lake, requires a regulatory amendment to the federal Boating Restriction Regulations under the Canada Shipping Act. Requests for boating restrictions are made from the Provincial to the Federal Government through the Fish and Wildlife Division, of Alberta Sustainable Resource Development. For more information on boating restrictions and boating regulations contact Pat Dunford (Head, Legislative and Advisory Services Section; Phone 780-427-4277) or Richard Lyons (Regulations Officer; Phone 780-422-1370).

Who Can I Contact?

To download a permit to apply for erosion control measures on the shoreline go to:

Application Form LS102-Lakeshore/Water Body Modification (Form)
<http://www3.gov.ab.ca/env/water/legislation/forms/index.html> http://www3.gov.ab.ca/srd/land/u_shorelands_app_reg.html

Alberta Environment through its Alberta Water Management and Erosion Control (AWMEC) Program may be able to assist local authorities resolve surface water management and erosion control problems. This program is not available to individual property owners. For more information, contact your regional Alberta Environment office. A brochure on the AWMEC program is available at: <http://www3.gov.ab.ca/env/water/Reports/AWMEC.pdf>

Are There Any Resources Available?

- Alberta Sustainable Resources has several publications available for download on their web-site located at:
http://www3.gov.ab.ca/srd/land/u_shorelands_lakeshores.html, including:
 - **Caring for Shoreline Properties** (Booklet):
http://www3.gov.ab.ca/srd/land/pdf/Caring_For_Shoreline_Properties.pdf, and
 - **Guidelines for Lakeshore Use** (Brochure):
<http://www3.gov.ab.ca/srd/land/pdf/shorelines.pdf>
- Alberta Environment, Water Management Division has information at:
<http://www3.gov.ab.ca/env/water/index.cfm>
- Information, regional contacts and access to the joint application form for developing shoreline modifications may be obtained from the Alberta Environment web-site at:
<http://www3.gov.ab.ca/env/water/Legislation/index.cfm>
- Fisheries and Oceans Canada also has resources available on their web-site:
www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/guidelines-conseils/index_e.asp
- **Working Around Water? What You Should Know about Fish Habitat and Shoreline Stabilization** (Fact sheet):
http://www.dfo-mpo.gc.ca/canwaters-eauxcan/infocentre/guidelines-conseils/factsheets-feuillets/alberta/ab5_e.asp#Top