

Managing Your Shoreline: Information for Agricultural Producers in the Athabasca



PURPOSE

The purpose of this package is to provide information and resources to agricultural producers (farmers and ranchers) working near the shoreline (riparian area) of a waterbody in the Athabasca watershed. Because riparian areas play an important role in overall watershed health, the Athabasca Watershed Council (AWC) is raising awareness about the resources and tools available to agricultural producers for riparian area conservation, and if needed, restoration.

WHO IS THE ATHABASCA WATERSHED COUNCIL?

The Athabasca Watershed Council (AWC) is a registered charity and one of eleven designated Watershed Planning and Advisory Councils working in partnership with the Government of Alberta (GOA) towards the *Water for Life* Strategy goals including¹:

- Safe, secure drinking water supplies
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy



The Athabasca watershed stretches across northern Alberta.

¹ Water for Life Strategy: <https://www.alberta.ca/water-for-life-strategy#:~:text=The%20Water%20for%20Life%20strategy,since%20its%20release%20in%202003.>

WHAT IS A RIPARIAN AREA?

So, what is a riparian area (also sometimes referred to as riparian zone or riparian lands)? It is the transition area between the land and the water, what most of us think of as the shoreline. Within the Athabasca watershed, these areas are often characterized by diverse vegetation growing in the rich and moist soil along the edges of our lakes, rivers, streams, and wetlands. It includes a variety of trees, shrubs, and grasses that are well adapted to wet conditions. It is often the most productive and valuable landscape found in an area and is essential for maintaining the health of aquatic ecosystems and the surrounding environment.

WHY ARE RIPARIAN AREAS IMPORTANT?

A healthy shoreline, or riparian area, can be beneficial and provide essential services for the land. The riparian area is important for:

- Improving water quality by creating a buffer between the water and land; this buffer filters out pollutants and excess nutrients and keeps them from reaching the water. A buffer with deep rooted vegetation also helps to prevent erosion and sedimentation of our waterbodies.
- Recycling, absorbing and releasing nutrients as needed by the land
- Controlling surface salt levels in surrounding crop land
- Acting as a sponge to soak up and hold excess water which can reduce the risk of flood damage and keep moisture during droughts
- Increase crop yield and forage production by creating fertile and productive soil through increased soil moisture and nutrient storage
- Providing habitat and food sources to a variety of wildlife, including pollinators and species who can help manage pests affecting crop yield and animal health
- Providing shade to reduce water evaporation and protect animals during heat cycles

ASSESSING RIPARIAN HEALTH

Although riparian areas play a large role in watershed health, they can become degraded over time due to natural weather events, erosion, and land development. It's important to be aware of what a healthy riparian area looks like and to understand when to take proactive action to protect the function of shoreline areas. Riparian health assessments use visual observation of both vegetative and physical parameters to better determine the state of riparian areas.

Landowners can undertake their own riparian health assessments, using resources from organizations like Cows and Fish² or the Riparian Web Portal³ or they can engage conservation groups like the AWC⁴ or Highway2Conservation to undertake an assessment for them. Having an idea of where your riparian area is vulnerable can help you address problems and better protect the benefits you gain from a healthy shoreline.






² Cows and Fish Health Assessment: <https://cowsandfish.org/riparian-health/>

³ Riparian Web Portal Measuring Health: <https://www.riparianresourcesab.info/measuring-health>

⁴ Athabasca Watershed Council: <https://awc-wpac.ca/athabasca-watershed-shorelines-initiative/>

SUGGESTIONS FOR CONSERVATION

After assessing your shoreline’s health, you may discover that your riparian area is healthy and functioning properly! Congratulations! But you also want to ensure you continue to maintain that health. By continuing to monitor the riparian area on your property, you can better observe the needs of the shoreline and act before extensive restoration is needed. Steps to take in conserving the shoreline include:

-  Minimizing the use of chemical products (i.e., pesticides, fertilizer) near water
-  Allowing natural debris (i.e., fallen branches, leaves) to remain on the shoreline
-  Avoiding unnecessary removal of native vegetation
-  Constructing cattle fencing to protect your shoreline
-  Implementing controlled seasonal/rotational grazing

To maintain a sustainable riparian area and help reduce the loss of function, it’s important that riparian vegetation can regenerate after grazing. The “*Caring for the Green Zone*” booklet provided by Cows and Fish provides important and helpful information on grazing management to landowners. Key principles of grazing and riparian area management include:

- Spreading livestock evenly to prevent overuse
- Avoiding grazing of the shoreline when vegetation is vulnerable to damage (e.g., an extended drought or after a flood)
- Providing rest to allow regrowth during optimal growing conditions
- Ensuring a balance between animal demand and forage supply regeneration

Also, watch out for invasive plant species trying to take over the riparian area. These species oftentimes take away space and nutrients from native species and don’t support the ecosystem as much as native species. Invasive species are often not the preferred food source or habitat for existing native organisms and have a reduced capacity to manage the nutrient balance.

Invasive Species

- Common Tansy
- Canadian Thistle
- Ox-eye Daisy
- Kentucky blue grass
- Dandelions
- Foxtail barley
- Scentless chamomile

The Alberta Invasive Species Council⁵ is a helpful resource to consult as it provides factsheets and information about different invasive species commonly found in Alberta. The Council also supports the use of EDDMapS (Early Detection and Distribution

⁵ Alberta Invasive Species Council: <https://abinvasives.ca/>

Mapping System) Pro⁶, a mobile application for documenting infestations of invasive species to better inform management strategies and utilize resources.

You can also observe how the shoreline is used by different animal species (e.g., pollinators, seed dispersers) to get a better sense of the ecosystem services your shoreline provides. This can allow you to better manage how you interact with the area and help with decision-making if needed. Tools such as the eBird⁷ and iNaturalist⁸ websites can be used to keep track of species you identify, and other species seen in the region.

METHODS OF RESTORING SHORELINES

If you determine your riparian area is unhealthy, there are different methods to restore its health and function to ensure it continues to provide ecosystem services to your land. The restoration method used will depend on the health of your shoreline and the issues you may be looking to fix.

Passive restoration involves letting the vegetative area regenerate by itself. This is the ideal method of restoration since it reduces the impact and allows the environment to recover with limited human interference. This is beneficial because it lets the ecosystem prioritize its needs and is a low-cost method of restoration. Common methods include fencing off areas to reduce damage caused by human and animal activity and letting the shoreline recover by limiting access to a livestock water source to a single point.

Another method of restoration is more active. In this case, it's important to consider the timeline that any restoration would take place. It's best to keep restoration efforts to times when wildlife is not dependent on the area for nesting or spawning to reduce the impact on their activities. Also, any activity that involves altering the shoreline (below the high-water mark) must receive approval from the appropriate authorities, so it's important to consider the necessity of taking more direct action and how it will affect the area.

One recommended method for active restoration is to plant diverse native species that will help with issues currently affecting your water body. Having a healthy vegetative diversity will allow for better tolerance of the restored area to environmental fluctuations and create a productive environment for various animal species and forage production.

A good indication of types of species to plant is to identify native species in neighbouring healthy riparian areas. The Alberta Native Plant Council (ANPC)⁹ offers resources like a plant database and field guides that can be consulted for identification tips as well as sources for purchasing native vegetation seeds and plants. Some examples they provide of common native species found in the Athabasca Watershed to consider for planting are listed to the right. Sources of native plant material can be found

Native Species to Plant

- Dogwood
- Saskatoon
- Willows
- Balsam poplar
- Sedges
- Common cattail
- Small-fruited bulrush
- River alder

⁶ EDDMapS: <https://abinvasives.ca/eddmaps-pro/>

⁷ eBird Website: <https://ebird.org/home>

⁸ iNaturalist Website: <https://www.inaturalist.org/>

⁹ Alberta Native Plant Council: <https://anpc.ab.ca/>

under the Growing Native Plants¹⁰ page of the ANPC for landowners to consult. The plant species you plant will depend on the moisture level, soil type and amount of light in the area you plan to plant. Additionally:

- If there is an issues of excess soluble nutrients and pesticides, the growth of different species of grasses and trees will contribute to better filtration.
- Types of grasses will also be helpful in cases of excess sediment-bound particles and pesticides, which can have negative impacts on aquatic life.
- For concerns of erosion and flooding, consider growing trees and shrubs with deep roots that can stabilize the shoreline.

Growing native riparian vegetation is essential for maintaining biodiversity. Native species will provide resistance to pests and will be better adapted to the ecosystem's conditions and needs. By supporting this growth, we can protect and restore beautiful landscapes to the benefit of both wildlife and producers.

The installation of off-site watering systems can also support the restoration or conservation of your riparian area while also providing clean and easily accessible water sources to cattle and other animals. Off-site water allows cattle to avoid muddy and wet areas near the shoreline, which could affect their access to supply water. When paired with cattle fencing to reduce trampling or access to the water, this lessens the load on your riparian area and lets the vegetation continue to provide services for your property.

COMMON QUESTIONS

How do I know if my shoreline is healthy or not?

A healthy shoreline will have a wide variety of lush vegetation in various stages of life. Having different trees, shrubs and grasses that create a good cover and that create an abundance of habitat shows that its current state is beneficial to the ecosystem and seems to be in good health. Organizations such as Cows & Fish¹¹ have guides on assessing the health of riparian areas and can be used to better understand the state of your shoreline.

How wide of a buffer does my shoreline need?

The size of your buffer area will depend on the size of the waterbody and the other activities happening on the land. The issues that you want to address will also affect the width needed. A wider buffer may be needed if the slope is steeper, if erosion or flooding is a concern, or if the activities on the land involve high management. The GOA guideline is that a buffer zone should be at least 30 meters wide to provide essential filtering and wildlife services. If a wider buffer is unable to be implemented, pairing it with a grass filter strip of at least 5 meters can help to separate cropland and the vegetative riparian area and reduce the load on the riparian buffer.

¹⁰ Growing Native Plants (ANPC): https://anpc.ab.ca/?page_id=2003

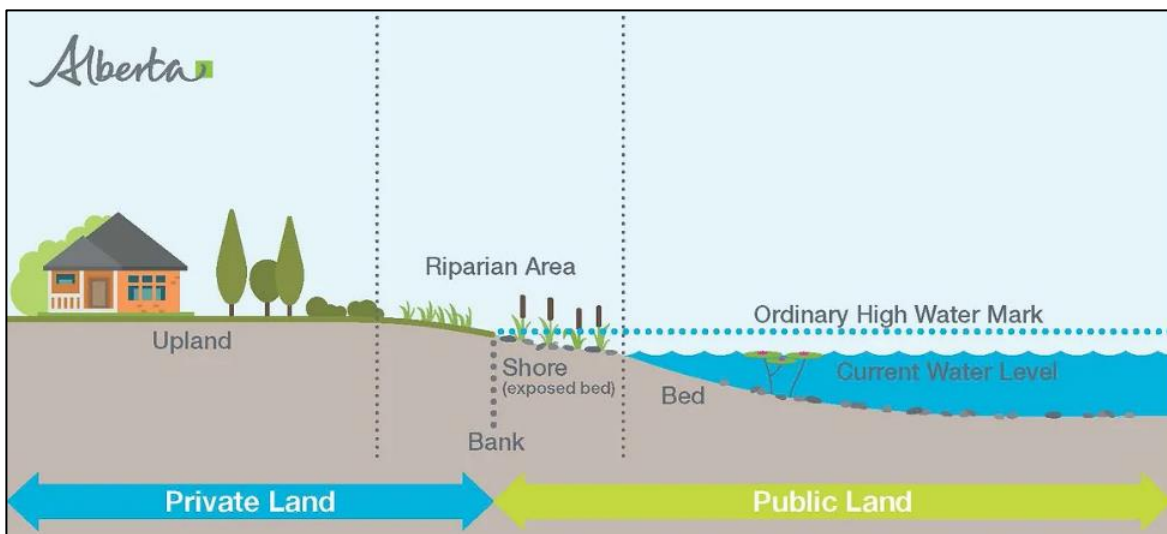
¹¹ Cows & Fish: <https://cowsandfish.org/>



Unhealthy riparian area with bare ground (left) versus a healthy well-vegetated riparian area (right).

Where does my property end?

In most cases, your property extends only to the “Ordinary High-Water Mark” or OHWM where the water typically meets the land during normal water levels and therefore does not include the edge of the water or the water body itself. The water and the shoreline up to the OHWM are considered Crown land and are owned by the GOA and authorization is needed before making any changes. There may be exceptions to this rule such as if your property is connected to an Environmental Reserve. It’s best to contact the local county office or the GOA to determine exactly where your specific property ends, as well as consult the property land title or survey map for more detailed information.



Can I add rocks to stop erosion of the shoreline?

It's recommended that only natural vegetation be used on the shoreline. Natural species are best adapted to the area and will provide the best protection against erosion. Any changes to the shoreline below the OHWM require permission from Alberta Public Lands¹² and possibly from the Department of Fisheries and Oceans (if fish habitat is affected) before they can be carried out. Fisheries and Oceans Canada¹³ can help review and determine any authorizations needed for projects near the shoreline and their website also provides links for those applying for authorization.

How do I know whether I need permission for my restoration or conservation activities?

A useful resource to consult is the GOA's *Shoreline/Water Body Modifications Facts at Your Fingertips Factsheet*¹⁴. This factsheet provides links and information about approvals for shoreline modifications and includes an overview of the application requirements. The Shoreline webpage¹⁵ on the GOA website also provides an overview of different activities and their approval requirements. Certain activities may also need a *Water Act* approval, such as building dams or ditches and diverting water to off-site reservoirs. The GOA *Canada/Alberta Farm Water Program Factsheet*¹⁶ provides an overview of activities that may need approval or licenses under the *Water Act* and the Water Legislation and Guidelines webpage¹⁷ provides additional links you can consult for more information.

What funding programs are available?

Organizations and governmental bodies may provide programs that could support your restoration and/or conservation projects. The GOA's Resilient Agricultural Landscape Program (RALP)¹⁸ supports primary producers adopting beneficial management practices. This program may provide financial aid on a per-acre basis for ecological goods and services protected by methods of conservation or restoration. It's important to note that under this program, all applicants must have a current Environmental Farm Plan (EFP)¹⁹. Other options that may be available include:

- Your local Alternative Land Use Services (ALUS)²⁰ which has programs aimed at supporting agricultural landowners.

¹² Shoreland Approvals, Alberta Public Lands: <https://www.alberta.ca/shorelands-approvals-and-regulatory-requirements>

¹³ Fisheries and Oceans Canada Project Review: <https://www.dfo-mpo.gc.ca/pnw-ppe/reviews-revues/request-review-demande-d-examen-001-eng.html>

¹⁴ Shoreline/Water Body Modifications Facts at Your Fingertips Factsheet: <https://d3n8a8pro7vhmx.cloudfront.net/lswc/pages/21/attachments/original/1487194699/ShorelineWaterBodyModifications-Oct2015.pdf?1487194699>

¹⁵ Shorelands, Government of Alberta: <https://www.alberta.ca/shorelands.aspx>

¹⁶ Canada/Alberta Farm Water Program Factsheet: <https://open.alberta.ca/dataset/ff694f2f-9efb-435e-bd0d-ecb66ba3f001/resource/7ad493c5-aa39-4132-9c2d-44e302be73e5/download/farmwaterprogramlicensing-sep2002.pdf>

¹⁷ Water Legislation and Guidelines: <https://www.alberta.ca/water-legislation-and-guidelines.aspx>

¹⁸ Resilient Agricultural Landscape Program: <https://www.alberta.ca/resilient-agricultural-landscape-program.aspx>

¹⁹ Alberta Environmental Farm Plan (EFP): <https://www.albertaefp.com/>

²⁰ Alternative Land Use Services <https://alus.ca/communities/>

- The On-Farm Climate Action Fund (OFCAF)²¹ by Results Driven Agriculture Research (RDAR) funds producers to implement Beneficial Management Practices such as rotational grazing.
- The Sustainable Canadian Agricultural Partnership is a federal-provincial partnership that includes funding under the Water program²² and can include projects involving adopting off-source watering systems.

I heard someone mention “conservation easements”. What does that mean?

A conservation easement is an agreement a landowner can make with a land trust which creates legal protection for an area of natural or cultural value and protects land resources. These agreements are negotiated between the landowner and the land trust to figure out what restrictions will be put on the land to protect it from development while allowing the landowner to continue activities such as grazing. The land itself remains entirely in the ownership of the landowner, but the easement area would be protected in perpetuity and would transfer to any new owners if the land is sold. Through Canada’s Ecological Gifts program⁹, the donor of the land area may be eligible for income, estate and/or tax benefits if the easement has a recognizable public benefit like protecting rare species, water supplies or heritage sites.

Why should I bother maintaining my riparian area if no one else is going to restore their shoreline as well?

Any action to restore the riparian areas in the watershed can help improve the health of the ecosystem and the benefits it brings to you and your property. So, even doing a small project can help the condition of your shoreline, as well as downstream users. But collective action is even better, so talk to your neighbours and organizations in and around your community. Consider joining a local stewardship group to help open discussion in your community and foster collective action. Creating a bigger project with multiple landowners can improve the effectiveness of your action and could gain more funding to help support it. We can all work together to protect and restore our local riparian areas, which in turn, benefits us all!

FOR MORE INFORMATION

For easier access to digital links in this document, please know that an online version of this factsheet is available at <https://awc-wpac.ca/athabasca-watershed-shorelines-initiative/>.

If you would like to talk to someone about your riparian area, or a potential project your thinking of undertaking, please feel free to contact us at:

Athabasca Watershed Council
Healthy Shoreline Initiative Project Coordinator
science@awc-wpac.ca
780-213-4550

²¹ On-Farm Climate Action Fund through RDAR: <https://rdar.ca/ofcaf/>

²² Sustainable Canadian Agricultural Partnership, Water Program: <https://www.alberta.ca/water-program.aspx>

ADDITIONAL RIPARIAN RESOURCES:

Topic/Source	Title	Link
Government of Alberta Legislation	Riparian Rights and Shoreline Modifications - Facts at Your Fingertips	https://open.alberta.ca/publications/riparian-rights-and-shoreline-modifications
	Public Lands Act and Water Act: Shoreline/Water Body Modifications	https://open.alberta.ca/publications/public-lands-act-and-water-act-shoreline-water-body-modifications-facts-at-your-fingertips
	Shorelands Approvals and Regulatory Requirements	https://www.alberta.ca/shorelands-approvals-and-regulatory-requirements.aspx
	Water Legislation and Guidelines	https://www.alberta.ca/water-legislation-and-guidelines.aspx
	Water Act Factsheet: Canada/Alberta Farm Water Program	https://open.alberta.ca/publications/water-act-factsheet-canada-alberta-farm-water-program-water-licensing-process-under-the-water-act
Cows and Fish	Riparian Health Assessment for Lakes and Wetlands Field Workbook	https://cowsandfish.org/wp-content/uploads/2022/05/LakesandWetlandsRHAWorkbook2020-1.pdf
	Caring for The Green Zone: Riparian Areas and Grazing Management	https://cowsandfish.org/wp-content/uploads/greenzone3rd.pdf
	Crops, Creeks & Sloughs Riparian Factsheet	https://cowsandfish.org/wp-content/uploads/crops_creeks_sloughs.pdf
	Riparian Health Assessment	https://cowsandfish.org/riparian-health/
Riparian Web Portal	Agricultural Producers	https://www.riparianresourcesab.info/agricultural-producers
	Measuring Health	https://www.riparianresourcesab.info/measuring-health
Alberta Conservation Association	Riparian Conservation	https://www.ab-conservation.com/featured-projects/land/riparian-conservation/
Beneficial Management Practices	Environmental Manual for Alberta Farmsteads	https://open.alberta.ca/publications/beneficial-management-practices-environmental-manual-for-alberta-farmsteads-2018-edition
	ALUS Grazing Guidebook	https://alus.ca/wp-content/uploads/2021/09/2021-09-27-ALUS-GRAZING-GUIDEBOOK-FINAL.pdf
	Pasture Water Systems for Livestock	https://open.alberta.ca/dataset/4043288

Topic/Source	Title	Link
West Central Forage Association	Resources for Agricultural Producers	https://www.westcentralforage.com/publications/additional-resources/
ARECA	Agricultural Research and Extension Council of Alberta: Alberta Environmental Farm Plan	https://www.albertaefp.com/
Funding	Sustainable Canadian Agricultural Partnership	https://www.alberta.ca/sustainable-cap-programs.aspx
	Resilient Agricultural Landscape Program	https://www.alberta.ca/resilient-agricultural-landscape-program.aspx
	Water Program	https://www.alberta.ca/water-program.aspx
	Alternative Land Use Services (ALUS)	https://alus.ca/
	Results Driven Agriculture Research: On-farm Climate Action Fund	https://rdar.ca/ofcaf/