# Lakes and Wetlands

Cows and Fish Fact Sheet

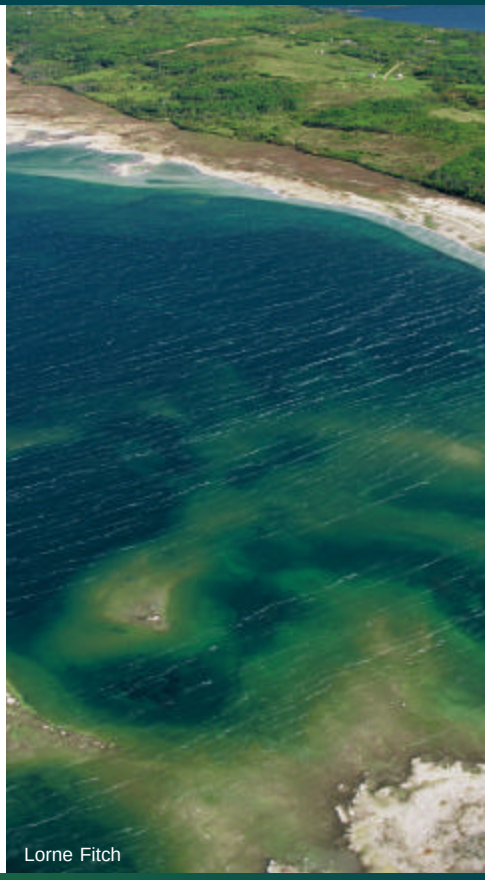
## What are Lakes and Wetlands?

There are many different kinds of lakes and wetlands in Alberta: from clear blue mountain lakes to the willow-lined potholes of central Alberta. They all have one thing in common - the water remains relatively still, in contrast to streams or rivers. Although the water in a lake or wetland is mostly still, over time there is a turnover or replacement of the water volume. Lakes are generally larger bodies of water than ponds, wetlands or sloughs, and they contain water year-round.

Lakes are classified by how many nutrients are present in them:

- **Eutrophic Lakes** are high in nutrients and are often geologically older lakes that have had more time to accumulate nutrients, or are at the end of a watershed, where nutrients have accumulated in the basin, as in a bathtub without a drain. Eutrophic lakes are highly productive.
- **Oligotrophic lakes** are low in nutrients and are often relatively young lakes. They may be higher up in the watershed, such as headwater lakes in the mountains. They are often deep and cold, which also reduces productivity and plant growth.
- **Mesotrophic lakes** are in between the two extremes described above and have moderate productivity.

In prairie and central Alberta, most lakes fall into the eutrophic or hyper-eutrophic (very productive) category.



Lorne Fitch

## The Riparian Zone: Where Land and Water Meet

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The shores of lakes and wetlands, where the lake water meets the land, are great places for plant growth. The lush area lining the edge of a lake, slough or river is known as the **riparian zone**.

Land and water constantly interact in a riparian zone, for example:

- Wind pushes the water up onto the shore and the warmth and nutrients of the land are transferred into the water.
- The energy from waves erodes the soil or rock over time.
- Drought can cause water levels to drop, increasing the exposure of the shoreline.
- Heavy rains may push water levels up over the regular lakeshore, causing flooding and providing a rush of sediments and nutrients to the riparian area and lake.
- Ice can be driven up onto the shoreline, increasing the risk of erosion.

# It's a Shore Thing. . .

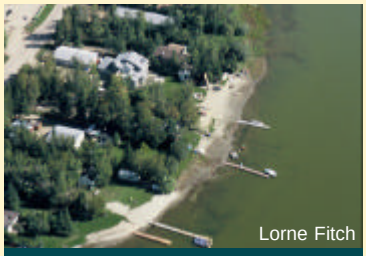
## Why are Lakes and Wetlands Important?

*Healthy lakes and wetlands mean. . .*

# Stability

The spreading, deep roots of shoreline vegetation hold the shore together, stabilizing the shoreline. Vegetation slows water down, reducing it s ability to carry sediments and erode the shoreline. During spring ice break-up and summer wind storms, vegetation acts like nature s rebar and protects the lakeshore from being eroded. As a bonus, the plants also trap sediment, from which shorelines are built.

*Cattails and rushes - nature's rebar*



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*Here, this exposed shoreline has little to protect it from ice and erosion*

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*The effect of wind, water and ice erosion on a well vegetated shoreline is minimal*

*Healthy lakes and wetlands mean. . .*

# Biodiversity

Fish, mammals, birds, amphibians and many invertebrates rely on shoreline vegetation as a place to forage, hide, and raise their young. Riparian zones around both lakes and rivers are hotbeds of biodiversity (see the Riparian Biodiversity Fact Sheet). Almost two-thirds of Canada s rare and endangered wildlife rely on riparian zones for all or part of their life cycle. Lakeshores are fabulous areas for birdwatching as they are home to many different bird species. Emergent lakeshore vegetation is vital to the fish that use it for reproduction, protection and feeding.





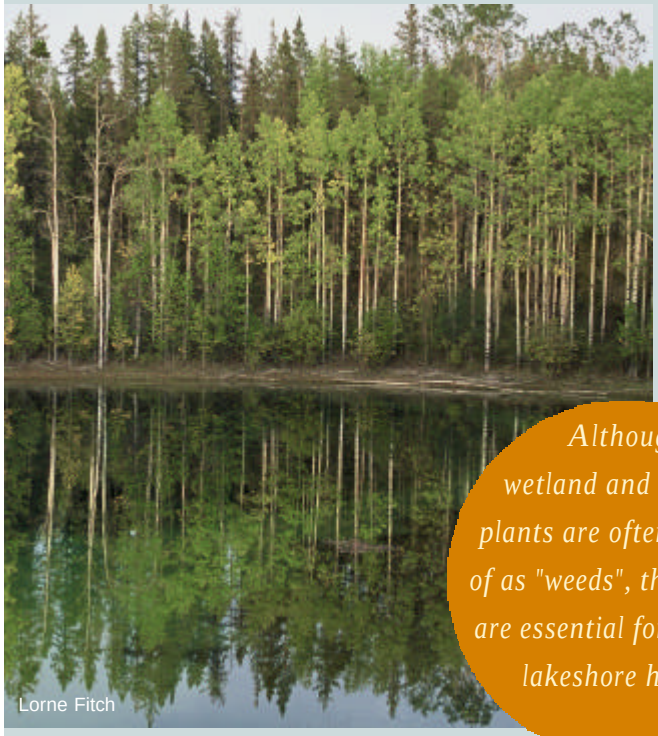
Biodiversity is important to people because it is a measurement of whether the ecosystem is healthy and stable. The healthier an ecosystem is, the more resilient it is for those who depend on it, such as livestock producers, anglers and recreational users.

# Why are Lakes and Wetlands Important?

*Healthy lakes and wetlands mean. . .*

## Water Quality

Shoreline vegetation helps reduce nutrients and sediment in the lake. Plants physically trap sediment and uptake the nutrients. This results in better water quality. Aquatic plants absorb nutrients and store them in their leaves and stems. If the shoreline vegetation goes missing, nutrients suddenly become available for other vegetation forms to take advantage of, like algae. Algae blooms can discourage us from swimming, tangle our fishing lines, make it difficult to get our boats out and create unpleasant smells. Because well vegetated shorelines reduce erosion and trap sediment, they also reduce the amount of sediment in the water, thereby increasing the clarity of the water. This makes it more pleasant for swimming, reduces water treatment costs and maintains fish habitat with less silt to cover spawning grounds.



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*Although wetland and aquatic plants are often thought of as "weeds", these plants are essential for lake and lakeshore health.*

*Shoreline vegetation helps to keep water clear and trap nutrients*

Lorne Fitch

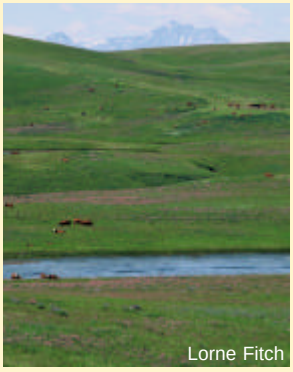
Lorne Fitch

*Algae blooms are typical of lakes with excess nutrients. Lack of lakeshore vegetation is a contributing factor to algae problems.*

*Healthy lakes and wetlands mean. . .*

## Water Storage

Healthy shorelines, and the watersheds behind them, act like a sponge, storing water and recharging groundwater supplies. Lakes and wetlands that lack shoreline vegetation are more vulnerable to the effects of drought. Healthy well-vegetated shorelines are resilient to drought and help to ensure adequate water supplies for people, wildlife and agriculture.



Lorne Fitch

# People, Lakes and Wetlands

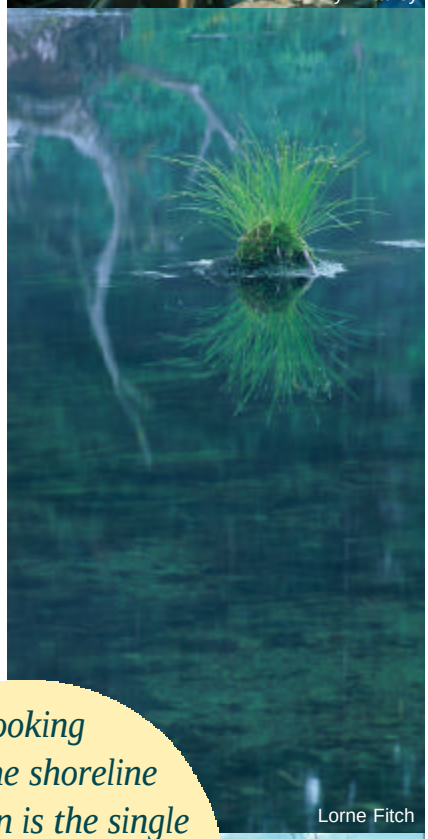

Cheryl Bradley

Who isn t attracted to a lakeshore? What better place to relax, live, play or even make a living? Lakes, wetlands and their shores provide us with many benefits. Lakes and wetlands offer a place for recreational activities like boating, fishing, swimming, windsurfing and nature watching. They often serve as summer or year-round gathering places, where campgrounds and cottages provide easy access to the lakeshore. Lakes provide drinking water for some municipalities and for agricultural purposes, such as for livestock or irrigation. Lastly, lake water is also a ready source of fresh water for some industries.


Alberta Conservation Association

*Leaving shorelines in their natural, unaltered state or returning them to their native vegetation is the best way to achieve a vigorous riparian zone. It is also the least expensive way to achieve cleaner water, and healthy populations of plants and animals.*

However, some uses may result in damage to the lakeshore. The most widespread and often most significant type of damage is the removal of vegetation. Also, altering lakeshores by dumping or filling with rock, sand or soil to increase shoreline area may add a flush of nutrients to the water, encouraging algae growth, reducing clarity, and damaging important habitat for fish and wildlife.


Lorne Fitch

*Looking after the shoreline vegetation is the single most important thing that stewards of lakeshores can do.*

Unaltered shorelines are beautiful in their wildness, in the habitat they provide for animals and plants and the recreational opportunities they offer for people. They provide us with many ecological services and benefits. Learn to see riparian vegetation as an asset and appreciate the natural benefits it provides to the lake, the people that use the lake, and the species that rely on the surrounding riparian area.


Lorne Fitch

*Healthy shorelines help make healthy lakes and wetlands.*


Working with producers and communities on riparian awareness

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Producers & Community Groups, Alberta Cattle Commission, Trout Unlimited Canada, Canadian Cattlemen s Association, Alberta Agriculture, Food & Rural Development, Alberta Environment, Department of Fisheries & Oceans, Prairie Farm Rehabilitation Administration, Alberta Conservation Association

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