

EFFECTS ON WILDLIFE



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Loons need healthy shorelines.

Healthy shorelines provide loons with quiet nesting sites free from disturbances and promote high water quality for a healthy food source.

However, healthy shorelines benefit more than just loons.

► **Perch and Green Frog populations plummet when woody debris is reduced.**

In a controlled experiment, 75% of underwater logs were removed from a lake's shoreline to assess the effect on perch, a favorite food of loons. The catch rate declined by three to four times in the following years (Helmut and Saas 2008). As numbers of cottages along shorelines increase, frog numbers decline and disappear at a certain threshold (Woodford and Meyers 2002).



RESULT: Woody debris is a critical component of healthy lakes by providing shade and hiding places, and habitat for small organisms, i.e., fish food.

► **Fish prefer undeveloped shorelines with natural vegetation.**

As shoreline development increases, the number of bass and crappie nests decreases. (Reed 2001).



RESULT: Bass and crappies prefer to nest along shorelines with trees and shrubs because there is less sedimentation, cooler and more oxygenated water, more woody debris and emergent vegetation for shelter, and more aquatic insects for food.

MAP KEY

- Highly Developed Shoreline
- Developed Shoreline with Dwelling
- Undeveloped Shoreline
- ★ Fish Nests



LONG-TERM CONSERVATION FOR LOONS



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CONTRIBUTE

VLCP is funded in part by the Vermont Fish & Wildlife Department, but most of our support comes from community members who care deeply about the Common Loon in Vermont.

If you would like to contribute, please send a check payable to Vermont Center for Ecostudies to the address below, or make an online donation at vtecostudies.org/give. Please note that your gift is for the VLCP. (Writing "Loons" on the check works, too.)

Vermont Center for Ecostudies

PO Box 420, Norwich, VT 05055

VCE is a 501(c)(3) nonprofit.

Contributions are tax-deductible to the full extent of the law.

To volunteer or report loon sightings please email:

loon@vtecostudies.org



Vermont's Common Loon

A GUIDE FOR LAKESHORE OWNERS



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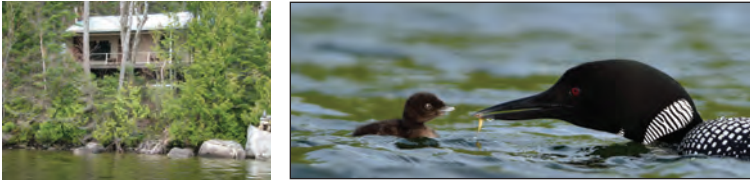
Connecting people to our lakes and ponds



Uniting People and Science for Conservation

HEALTHY SHORELINES FOR WILDLIFE

The Vermont Loon Conservation Project (VLCP) staff and volunteers, lake residents, boaters, and the Vermont Fish & Wildlife Department have done a tremendous job in helping loons recover from fewer than 10 nesting pairs in the 1980s to over 100 nesting pairs in the state. However, over 50% of loon nests are located in sites at high risk either to disturbance or potential habitat loss; most loons in Vermont nest on private lands. The VLCP is committed to promoting long-term conservation of Vermont's Common Loons, with a focus on lakeshores. **Please join us!**



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Lakes with natural shorelines have buffer zones of trees, shrubs, grasses, and rocks that protect wildlife habitat, provide loon nesting areas, and support the base of the lake's food chain. Without healthy fish and insect populations, loons may reduce their use of a lake or be unable to raise chicks. By returning our shorelines to a more "wild" condition, loons and all other wildlife will benefit. Please take the time to learn how you can be a great steward of healthy shorelines.

Our lakes need your help to keep them healthy for loons, fish, and other wildlife.

SIGNS OF A HEALTHY SHORELINE

SHALLOW WATER (LITTORAL) ZONE

Extends from water's edge to where sunlight no longer reaches the bottom.

- ▶ Underwater and emergent plants provide habitat for insects and fish and prevent erosion of lakeshores.
- ▶ Woody debris and leaves from trees provide habitat for the base of a lake's food chain, including structure for eggs and insects, shade, hiding places, and food.
- ▶ Shade from overhanging trees and bushes keep water temperatures cool, which is important for aquatic insects and fish.

SHORE UPLAND RIPARIAN ZONE

The natural area of rocks, plants, and trees where water and land come together.

- ▶ Trees, shrubs, and tall grasses provide food, habitat, and nesting places for birds, mammals, and amphibians.
- ▶ Wide forested areas provide wildlife corridors along lakeshores and inland areas. Amphibians may move over 1000 feet from lakeshores; lawns and driveways can hinder access to these needed animal highways.

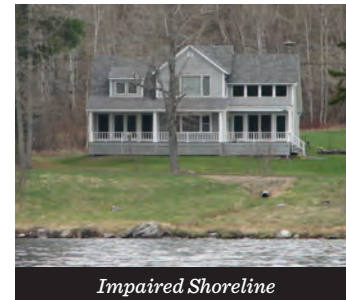
BENEFITS OF BUFFERS

HEALTHY VS. IMPAIRED LAKESHORES

Healthy shorelines have a buffer zone of rocks and woody plants like trees, shrubs, ground cover, and wildflowers. Developed or impaired shorelines' natural vegetation has been replaced with sandy beaches and lawns.



Healthy Shoreline



Impaired Shoreline

HOW DO BUFFER ZONES AFFECT RUNOFF?



Water Runoff
1000 ft³ vs. 5000 ft³
(5x increase)

Phosphorus to Lake
0.03 lbs vs. 0.20 lbs
(7x increase)

Sediment to Lake
5 lbs vs. 90 lbs
(18x increase)

(Apr.-Oct. Study
Wisconsin DNR)



The hard compacted ground created by lawns allows runoff to carry sediment and phosphorus into a lake. This results in increased algae growth, reduced water clarity, and the filling in of sand and cobble lake bottoms with silt. This in turn causes fish, frogs, crayfish, and aquatic insects to lose habitat and shelter, degrading lake quality for Common Loons.

STEWARDSHIP OF LAKESHORES

STEWARDSHIP IS SIMPLE

Adopting these practices will improve your property and local wildlife habitat.

- ▶ Allow mowed areas to regrow, and plant native plants.
- ▶ Keep lawns small and away from the lakeshore.
- ▶ Leave a "buffer" zone of woody plants.
- ▶ Clear only a narrow path to the shoreline.
- ▶ Leave trees where they fall.
- ▶ Only cut tree limbs every few years to maintain a "partial" lake view.
- ▶ Divert runoff from the cottage area away from the lake.
- ▶ Swim from docks instead of creating beaches.
- ▶ Enjoy more time swimming, reading, relaxing, and playing with children and grandchildren instead of maintaining your yard.

STEWARDSHIP IS BENEFICIAL

Shoreline Stability: A buffer provides your shoreline with long-term protection from wave or ice erosion. Retaining walls are an expensive fix that won't last.

Scenic Value and Privacy: What does your property look like from the lake? Most people agree that shrubs and trees along lakeshores enhance a lake's beauty.

Canada Goose Control: Geese like lawns. A wide shrubby buffer will reduce geese on your property.

Property Value: People buy property on healthy lakes; healthy lakes have buffer zones.

Corridors for Wildlife: Songbirds, deer, moose, mink, otter, and amphibians need "forested highways" to move about, find food and mates, breed successfully, and disperse as they get older.

- To adopt lake-friendly shoreland practices, participate in the award-based **Lake Wise Program** (dec.vermont.gov/watershed/lakes-ponds/lakeshores-lake-wise), and earn a beautiful lake stewardship sign.
- Join your local lake or pond association, or start one.
- Assist the town planning commission with lake protection issues.
- Join the Federation of VT Lakes and Ponds, www.vermontlakes.org