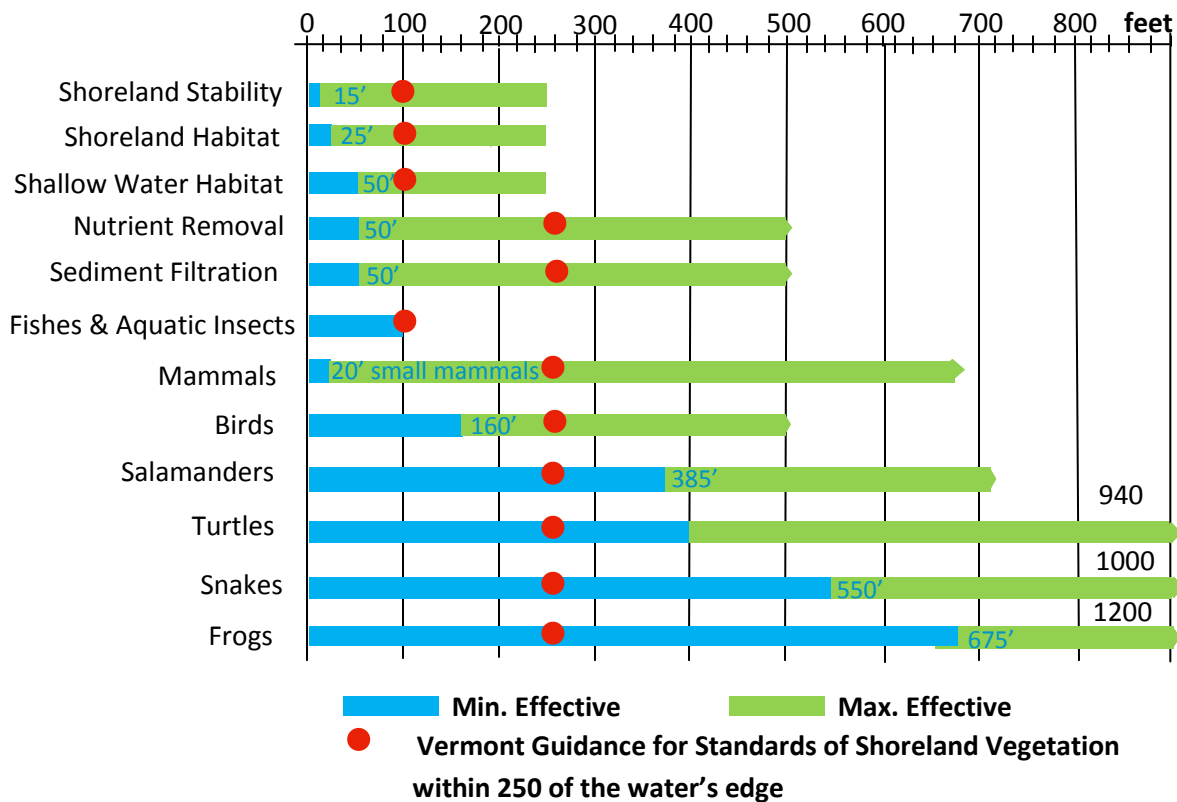
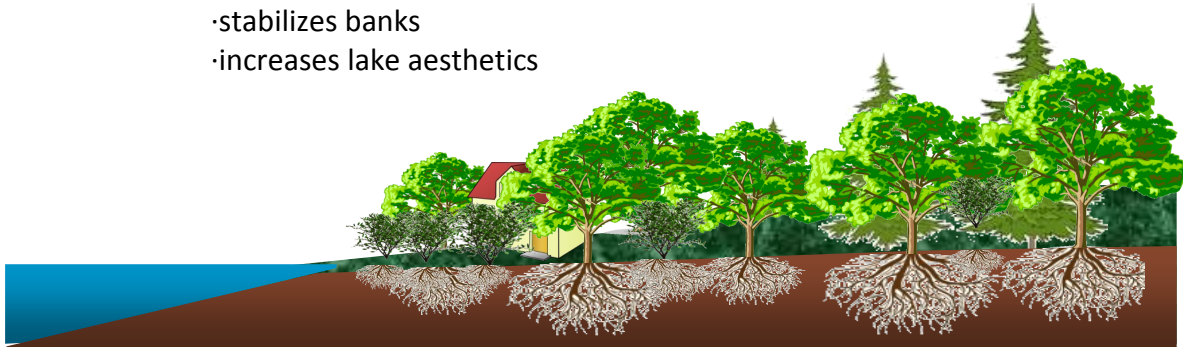


# Widths of Lakeshore Vegetation For Lake Protection

*measured horizontally in feet*

## Natural Lakeshore Vegetation:

- filters and cleans dirty runoff from uphill land uses
- provides shoreland and shallow-water habitat
- stabilizes banks
- increases lake aesthetics



## Additional Factors that Alter Effectiveness of Vegetated Shores:

- Density and Composition of Shoreland Trees and Shrubs - multiple layers (overstory, understory, and groundcover), plant species, and age classes are vital to rainfall retention, and for soil and bank stabilization.
- Slope - the steeper the slope, the less stable the bank. Sloped shores require wider widths of vegetation. All widths are measured horizontally.
- Land Use above the Shoreland Area - surfaces that easily erode (e.g. gardens and farm fields), or are considered impervious (e.g. rooftops, driveways and decks), should be minimized to lessen their impact of increasing dirty runoff to the lake, and therefore increasing the "work load" on shoreland vegetation.

References on reverse of this page

## Shoreland Vegetation Widths - References

### Shoreline Stability:

Stabilization Measures for an Eroding Lakeshore. Vermont Lake Protection Series #3B. Vermont Agency of Natural Resources. Montpelier, VT. **(10' to 15' minimum width)**.

FEMAT. 1993. Forest Ecosystem Management: An Ecological, Economic, and Social Assessment. Report of the Forest Ecosystem Management Team July 1993. USFS, USF&WS, BLM, NPS, and EPA.

Robert J. Naiman, Robert E. Bilby, and Peter A. Bisson. 2000. Riparian Ecology and Management in the Pacific Coastal Rain Forest. Bioscience. Vol. 50 No. 11 .

### Shoreline Habitat (in terms of Plant Diversity)

S. C. Spackman and J. W. Hughes. 1995. Assessment of minimum stream corridor width for biological conservation: Species richness and distribution along mid-order streams in Vermont, USA. Biological Conservation 71, 325-332. **(100' minimal width for species richness in streams)**.

### Shallow Water Habitat

R.A. Fischer and J.C. Fischenich. 2000. Design Recommendations for Riparian Corridors and Vegetated Buffer Strips. US Army Engineer Research and Development Center pub# ERDC TN-EMRRP-SR-24

USACE 1991. Buffer Strips for Riparian Zone Management (A Literature Review): Prepared for the State of Vermont. New England Division, Corps of Engineers. Waltham, MA.

Kellie Merrell, Jeremy Deeds, and Mark Mitchell. March 14, 2013. Determining if Maine's Mandatory Shoreline Zoning Standards are Effective at Protecting the Environment. A joint study conducted by the Vermont Department of Environmental Conservation and the Maine Department of Environmental Protection **(100' minimal vegetative width for aquatic habitat)**.

### Nutrient Removal and Sediment Filtration

S.E Woodward and C.A. Rock. 1995. Control of residential stormwater by natural buffer strips. Lake and Reservoir Management 11, 37-45. **(50' minimal width of vegetation for filtration)**.

### Fishes and Aquatic Insects

Richard Langdon. 2013. Personal communication with Russ Ford.

Kellie Merrell, Jeremy Deeds, and Mark Mitchell. 14 March 2013. Determining if Maine's Mandatory Shoreline Zoning Standards are Effective at Protecting the Environment. A joint study conducted by the Vermont Department of Environmental Conservation and the Maine Department of Environmental Protection **(100' minimal vegetative width for aquatic habitat)**.

Vermont Agency of Natural Resources. 2005. Riparian Buffers and Corridors Technical Papers. Vermont Agency of Natural Resources. Waterbury, VT.

Vicki Chase, Laura Deming and Francesca Latawiec. 1995 revised 1997. Buffers for Wetlands and Surface Waters: A Guidebook for New Hampshire Municipalities. Audubon Society of New Hampshire.

.A. Fischer and J.C. Fischenich. 2000. Design Recommendations for Riparian Corridors and Vegetated Buffer Strips. US Army Engineer Research and Development Center pub# ERDC TN-EMRRP-SR-24 **(100' minimal vegetative width for aquatic habitat)**.

### Mammals

Vicki Chase, Laura Deming and Francesca Latawiec. 1995 revised 1997. Buffers for Wetlands and Surface Waters: A Guidebook for New Hampshire Municipalities. Audubon Society of New Hampshire. **(20' minimal vegetative width for small mammals; 330' for furbearers)**.

### Birds

J. Tassone. 1991. Utility of hardwood leave strips for breeding birds in Virginia's central Piedmont. M.S. thesis, Virginia Polytechnic Institute and State University. Blacksburg, VA. **(160' minimal vegetative width for birds)**.

S. C. Spackman and J. W. Hughes. 1995. Assessment of minimum stream corridor width for biological conservation: Species richness and distribution along mid order streams in Vermont, USA. Biological Conservation 71, 325-332. **(500' width for birds)**.

### Reptiles and Amphibians

R.D. Semlitsch and J. R. Bodie. 2003. Biological Criteria for Buffer Zones around wetlands and Riparian Habitat for Amphibians and Reptiles. Conservation Biology Vol. 17 No. 5 pp 1219-1228. **(Minimal width of vegetation of 385' for salamanders; 400' for turtles; 550' for snakes; 675' for frogs)**.