

## Nutrient Reduction with Shoreline Buffering

Native vegetation consisting of trees, shrubs and ground cover, when assembled together as a buffer area next to the lake, prevent erosion, stabilize and shade the shoreline, absorb excess nutrients, recharge groundwater, provide wildlife habitat for small animals and invertebrates and help to deter waterfowl (such as Canada geese), from grazing on lawns accessed from the lake. Shoreline buffers protect water quality when they intercept and prevent nutrients and pollutants that are carried in stormwater runoff from entering Lake George.

Excess nutrients feed aquatic plants and algae and lead to eutrophication or a premature aging of a lake. Lake George is an oligotrophic lake with low primary productivity, consequently very clear water. Lake George is currently classified as Class AA-Special (drinking water), but the water quality is changing due to an increase of nutrients and pollutants from human impact and development.

Removing trees, shrubs and natural ground cover on the shoreline for development of roads and houses alters the natural stormwater management and treatment by eliminating nature's filtering system, as these plants are considered protective vegetation. With development, the increase in impervious surfaces allows non-point source (NPS) pollution (excess nutrients, sediment, contaminants and pathogens) to enter the lake directly, resulting in eutrophication and decreasing water quality.

The natural vegetation has been removed from much of the Lake George shoreline that has been developed, and has been replaced with lawns that extend to the water's edge. Grass roots are shallow and unable to filter sediment and NPS during rainstorms. Planting a vegetative buffer between your lawn and the lake is essential to reduce flowing nutrients and pollutants by infiltrating them into the soils before they reach the lake.

### **Good shoreline buffers would include the following:**

**Trees:** An upper canopy intercepts rain and softens the fall of heavy precipitation by allowing gentle trickling from branches onto the ground. Without an intact canopy, heavy rains cause erosion.

**Shrubs:** Shrubs intercept rainfall and their roots hold the soils in place. Shrubs provide wind block, are a refuge for birds and reduce noise.

**Groundcovers:** Low growing plants slow down surface water runoff and provide habitat and food for butterflies and other insects. The roots hold soils, absorb nutrients and NPS.

**Duff Layer:** Accumulation of plant matter on the ground (duff) in combination with groundcover vegetation, traps sediment and absorbs water. Duff includes micro-organisms that break down and recycle plant material into nutrients that feed and enrich the soil.

Plan your shoreline buffer with the specific native vegetation that will grow best in your particular location. Native vegetation, once established, does not need to be watered and requires no fertilizer. Enhancing your shoreline buffer, whether it has always been there or is a new addition, continuously increases its ability to 'buffer' human activity and protect the lake. Shoreline vegetation does not prevent lake access, which can be achieved via a winding footpath through your shoreline buffer. Avoid straight paths that may direct water into the lake, and use a vegetation lined permeable pathway (stone, mulch or wood chips). The indirect route will allow stormwater runoff to infiltrate the vegetation as it winds and turns.



**Homes with Native Vegetation Shoreline Buffers and Filtered Views of the Lake**



**Homes with Planted Shoreline Buffers**



**Homes with Lawn to the Lake and No Shoreline Buffers**