

***“Stormwater runoff causes or contributes to over 90% of the water pollution problems in New Hampshire.” - 2018 Lakes Congress, NH Lakes Association***

**From Lake Kanasatka 2017 Water Quality Report from University of New Hampshire:**

### **10 Recommendations for Healthy Lakeshore and Streamside Living**

Consider the following recommendations and spread the word to your lake association and neighbors.

1. Encourage shoreside vegetation and protect wetlands - Shoreside vegetation (also known as **riparian vegetation**) and wetlands provide a protective buffer that “traps” pollutants before reaching the lake. These buffers remove materials both chemically (through biological uptake) and physically (settling materials out). As riparian buffers are removed and wetlands lost, pollutant materials are more likely to enter the lake and in turn, favor declining water quality. Tall shoreline vegetation will also discourage geese invasions and shade the water reducing the possibility of aquatic weed recruitment including the dreaded invasive milfoil.
2. Limit fertilizer applications - Fertilizers entering the lake can stimulate aquatic plant and algal growth and in extreme cases result in noxious algal blooms. Increases in algal growth tend to diminish water transparency and under extreme cases culminate in surface “scums” that can wash up on the shoreline and can also produce unpleasant smells as the material decomposes. Excessive nutrient concentrations also favor algal forms known to produce toxins which irritate the skin and under extreme conditions, are dangerous when ingested. Use low maintenance grasses such as fescues that require less nutrients and water to grow. Do not apply any fertilizers until you have had your soils tested. Oftentimes a simple pH adjustment will do more good and release nutrients already in the soils. After a lawn is established a single application of fertilizer in the late fall is generally more than adequate to maintain a healthy growth from year to year.
3. Prevent organic matter loading - Excessive organic matter (leaves, grass clippings, etc.) are a major source of nutrients in the aquatic environment. As the vegetative matter decomposes, nutrients are “freed up” and can become available for aquatic plant and algal growth. In general, we are not concerned with this material entering the lake naturally (leaf senescence in the fall) but rather excessive loading of this material as occurs when residents dump or rake leaf litter and grass clippings into the lake. This material not only provides large nutrient reserves, which can stimulate aquatic plant and algal growth, but also makes great habitat for leeches and other potentially undesirable organisms in swimming areas.
4. Limit the loss of vegetative cover and the creation of impervious surfaces - A forested watershed offers the best protection against pollutant runoff. Trees and tall vegetation intercept heavy rains that can erode soils and surface materials. The roots of these plants keep the soils in place, process nutrients and absorb moisture so the soils do not wash out. Impervious surfaces (paved roads, parking lots, building roofs, etc.) reduce

the water's capacity to infiltrate into the ground, and in turn, limit the effectiveness of nature's water purification system, our soils. As water seeps into the soil, pollutants are removed from the runoff through absorption onto soil particles. Biological processes of soil organisms and plants detoxify substances and/or immobilize substances. Surface water runoff over impervious surfaces also increases water velocities, which favor the transport of a greater load of suspended and dissolved pollutants into your lake.

5. Follow the Flow - Try to landscape and re-develop with consideration of how water flows on and off your property. Divert runoff from driveways, roofs and gutters to a level vegetated area or a rain garden so the water can be slowed, filtered and hopefully absorbed as recharge for your well.
6. Discourage the feeding of ducks and geese - Ducks and geese that are locally fed tend to concentrate in higher densities around the known food source and can result in localized water quality problems. Waterfowl quickly process food into nutrients that are capable of stimulating microscopic plant ("algal") growth. Ducks and geese are also host to the parasite responsible for swimmers itch. While not a serious health threat, swimmers itch is very uncomfortable especially for young children.
7. Maintain septic systems - Faulty septic systems are a big concern as they can be a primary source of water pollution around our lakes in the summer. Septic systems are loaded with nutrients and can also be a health threat when not functioning properly. Inspect your system on a timely basis and pump out the septic tank every three to five years depending on tank capacity and household water use. Since the septic system is such an expensive investment often costing a minimum of \$10,000 for a complete overhaul, it is advantageous to assure proper care is taken to prolong the system's life. Additionally, following proper maintenance practices will reduce lake and ground water quality degradation.
8. Take care when using and storing pesticides, toxic substances and fuels as it only takes a small amount to pollute lake, stream and ground water. Store, handle and use with attention paid to the label instructions.
9. Stabilize access areas and beaches - Perched beaches (cribbed areas) that keep sand and rocks in-place are preferred if you have to have that type of access. Do not create or enhance beach areas with sand (contains phosphorus, smothers aquatic habitat, fills in the lake as it gets transported away by currents and wind and encourages invasive plants and algal blooms), particularly if the sand disappears with time.
10. Review the Shoreland Water Quality Protection Act (SWQPA) if you have shoreland property, <http://des.nh.gov/organization/divisions/water/wetlands/cspa/>. The SWQPA sets legal regulations aimed at protecting water quality. If you have any questions regarding the Act you can contact the New Hampshire Department of Environmental Services Shoreland Program at 271-2147 or shoreland@des.nh.gov

**The materials below offer more detailed guidance on assessing and implementing corrective actions to maintain or improve the quality of surface and subsurface runoff that impacts water quality:**

- New Hampshire Homeowner's Guide to Stormwater Management: Do- It-Yourself Stormwater Solutions for Your Home. "Soak Up the Rain New Hampshire", 66 pages  
<http://des.nh.gov/organization/commissioner/pip/publications/wd/documents/wd-11-11.pdf>
- Landscaping at the Water's Edge: An Ecological Approach, 93 pages  
[http://extension.unh.edu/resources/files/Resource004159\\_Rep5940.pdf](http://extension.unh.edu/resources/files/Resource004159_Rep5940.pdf)
- A Shoreland Homeowner's Guide to Stormwater Management: Protecting your Home and Environment, 16 pages  
<https://www.des.nh.gov/organization/commissioner/pip/publications/wd/documents/nhdes-wd-10-8.pdf>
- Integrated Landscaping: Following Nature's Lead, available to order online, 168 pages  
<https://extension.unh.edu/resource/integrated-landscaping-following-natures-lead-book>
- The Best Plants for New Hampshire Gardens and Landscapes - How to Choose Annuals, Perennials, Small Trees & Shrubs to Thrive in Your Garden, available to order online, 96 pages  
<https://extension.unh.edu/resource/best-plants-nh-gardens-and-landscapes-book>
- Native Plants for New England Rain Gardens, 10 pages  
[https://extension.unh.edu/resources/files/Resource005899\\_Rep8265.pdf](https://extension.unh.edu/resources/files/Resource005899_Rep8265.pdf)
- Pipeline: Summer 2008. Vol. 19, No. 1. Septic Systems and Source Water Protection: Homeowners can help improve community water quality, 8 pages  
[http://www.nesc.wvu.edu/pdf/WW/publications/pipline/PL\\_SU08.pdf](http://www.nesc.wvu.edu/pdf/WW/publications/pipline/PL_SU08.pdf)
- Determine if a shoreland permit is required, online tool  
<https://www.surveymonkey.com/r/shoreland?sm=pAM9MZUVAgWVtv2x71JA9JyO89iDgW%2bgF4Ny%2fvn3hrM%3d>
- Vegetation Management for Water Quality, 4 pages  
<https://www.des.nh.gov/organization/commissioner/pip/factsheets/sp/documents/sp-5.pdf>
- NH Residential Loading Model Stormwater Footprint Calculator, online tool  
<http://winnepesaukee.gateway.org/resources/phosphorus-calculator/>
- Directory of Landscape Professionals Trained in Ecological Landscaping for Water Quality Protection, by UNH Extension  
[https://extension.unh.edu/resources/files/Resource005519\\_Rep7701.pdf](https://extension.unh.edu/resources/files/Resource005519_Rep7701.pdf)

**What to do if you suspect an algae bloom on Lake Kanasatka:**

- Notify board members and water quality chair (their email addresses are available on LKWA website) with the following information:
  - o Location of the suspected bloom on the lake (be specific...address, landmarks, etc.)
  - o Approximate size
  - o Anything noteworthy – when you noticed it, how long it has been there, has it changed, what it looks like (provide photos if possible)
- Water quality chair will assess and notify both NHDES and UNH Lakes Lay Monitoring Program
- If NHDES or UNH are not readily available, water quality chair or designee will visit site, take photos, note size, and collect a sample in a 125ml or larger container. Sample will be kept refrigerated and delivered to NHDES or UNH same or next day
- Water quality chair or designee will follow up with residents and members