



Nippo Lake Rain Garden Workshop

Introduction

The water of Nippo Lake in Barrington has been having some health problems lately and the Maiorinos of the Nippo Lake Golf Club wanted to help do something about it. On a lovely summer day in August 2016, they hosted a Soak Up the Rain New Hampshire (SOAK NH) Rain Garden Workshop at their home nearby the lake. Friends, neighbors, and lake association members gathered to learn how water from rain storms and snowmelt can be captured and allowed to soak into the ground rather than runoff and potentially add to problems in the lake. During the workshop, participants helped install a rain garden and learned about the ten “Stormwater Solutions” promoted by SOAK NH.



Nippo Lake Rain Garden Workshop attendees are all smiles after a day of learning about how to protect the lake.

Nippo Lake Health Problems

Every summer since 2010, cyanobacteria blooms have occurred on Nippo Lake. These blooms are outbreaks of blue-green colored bacteria (commonly referred to as “blue-green algae”) that produce compounds which are potentially toxic for humans and animals. Small amounts of cyanobacteria are naturally present in lakes, but excess phosphorus

The Phosphorus / Lake Water Connection

RAIN AND SNOW

- Rain fall and snow melt run down a path toward a lake.

SEDIMENT (AND MORE)

- Sediment, fertilizer, and animal waste loosened by the rain drops and running water flow into the lake.

PHOSPHORUS

- A nutrient called phosphorus associated with the sediment, fertilizer, and waste is released into the lake water.

PLANT GROWTH

- Excess phosphorus stimulates growth of native and invasive lake plants and of naturally occurring cyanobacteria / algae.

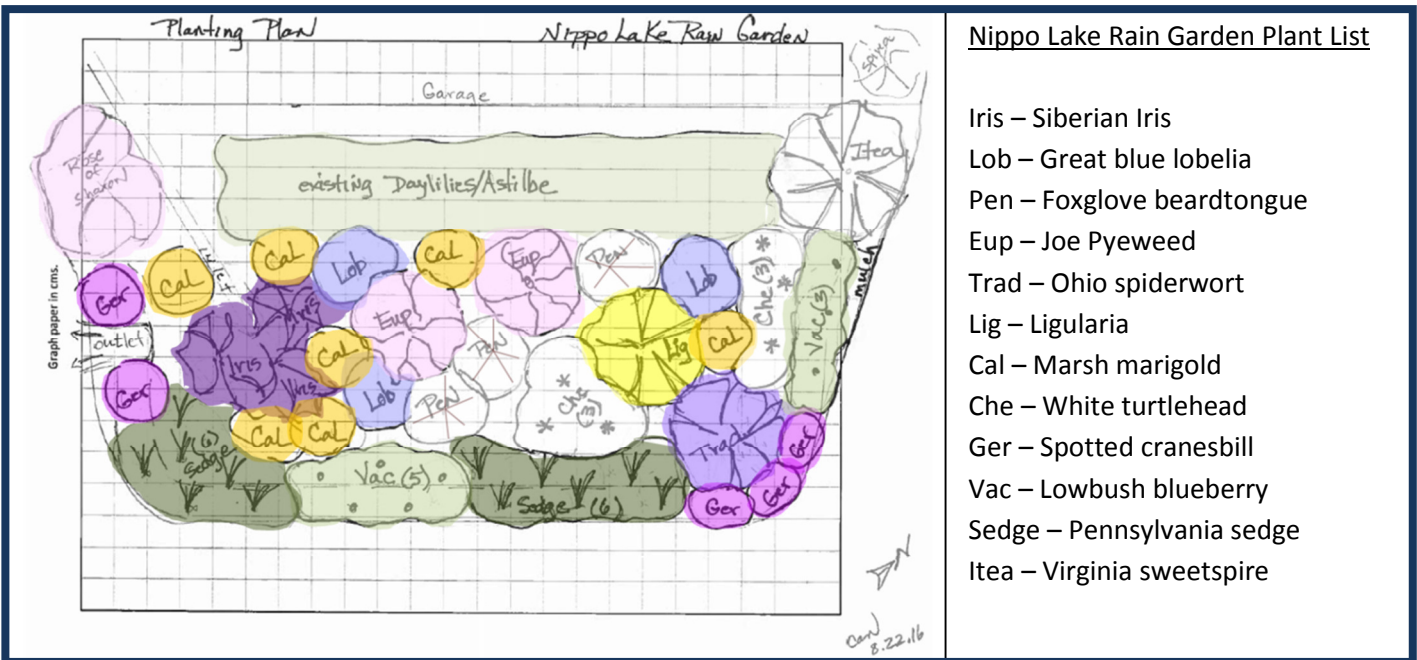
LOSS OF GOOD WATER QUALITY

- Excess growth leads to low oxygen levels, cloudy and weed-choked water, and cyanobacteria/algae blooms.

levels are believed to stimulate large and potentially toxic blooms. Homes around the lake may add to phosphorus levels when rain runs off roofs, driveways, and lawns into the lake. See the “Phosphorus / Lake Water Connection” chart for the step-by-step process.

Rain Garden

To help reduce runoff down Golf Course Lane from entering the lake, Tina and John Maiorino agreed to partner with SOAK NH to install a rain garden. The rain garden captures water from part of the house roof, all of the garage roof and a portion of the side yard. The water then ponds up in the rain garden and slowly sinks into the ground. Before the rain garden, some of this water would run off their property, down the unpaved lane, and into the lake.



The planting plan and plant list (courtesy of Cathy Neal, UNH Cooperative Extension) for the Nippo Lake rain garden. Plants in the base of the the rain garden must be able to tolerate standing water for up to a day. These plants and other recommendations can be found on *Native Plants for New England Rain Gardens* on the SOAKNH website at soaknh.org.

To accommodate the large roof areas plus some runoff from the yard, a large rain garden was planned and an excavator was needed to dig the hole. Rain gardens are sunken landscape features so a hole deep enough to install a planting bed (for good root support), add a mulch layer (for moisture retention and weed control), and provide a ponding area (for water to build up and then slowly sink in) is needed. Typically, Soak Up the Rain NH rain gardens are six to eight inches deep when finished.

At this site, existing foundation plantings including day lilies and a Rose-of-Sharon shrub were left in place to frame the garden. Extensions added to the existing downspouts were buried to direct water into the garden. A berm was built along the low side of the garden to create the bowl shape needed to capture the rain from the roof. An armored outlet, a necessary rain garden feature, was built within the berm to provide a controlled spot for the garden to overflow during larger storms.

Nippo Lake Benefits

The Maiorinos' rain garden is expected to capture 1,518 cubic feet (that's 11,355 gallons!) of water each year,

preventing 2.03 pounds of sediment, 0.01 pounds of phosphorus, and 0.12 pounds of nitrogen from runoff from their roof annually. Additionally, capturing the rain and snow melt will reduce flow down Golf Course Lane into Nippo Lake, conceivably further reducing sediment and phosphorus transport to the lake. This rain garden is a perfect model of how Do-It-Yourself Stormwater Solutions can help protect our valuable water resources such as Nippo Lake.



Neighbors and Nippo Lake Watershed Associations members planting irises and mulching the rain garden. This rain garden helps protect Nippo Lake by collecting stormwater and preventing it from running down the road into the lake. The over-turned pots protect the plantings while spreading mulch.