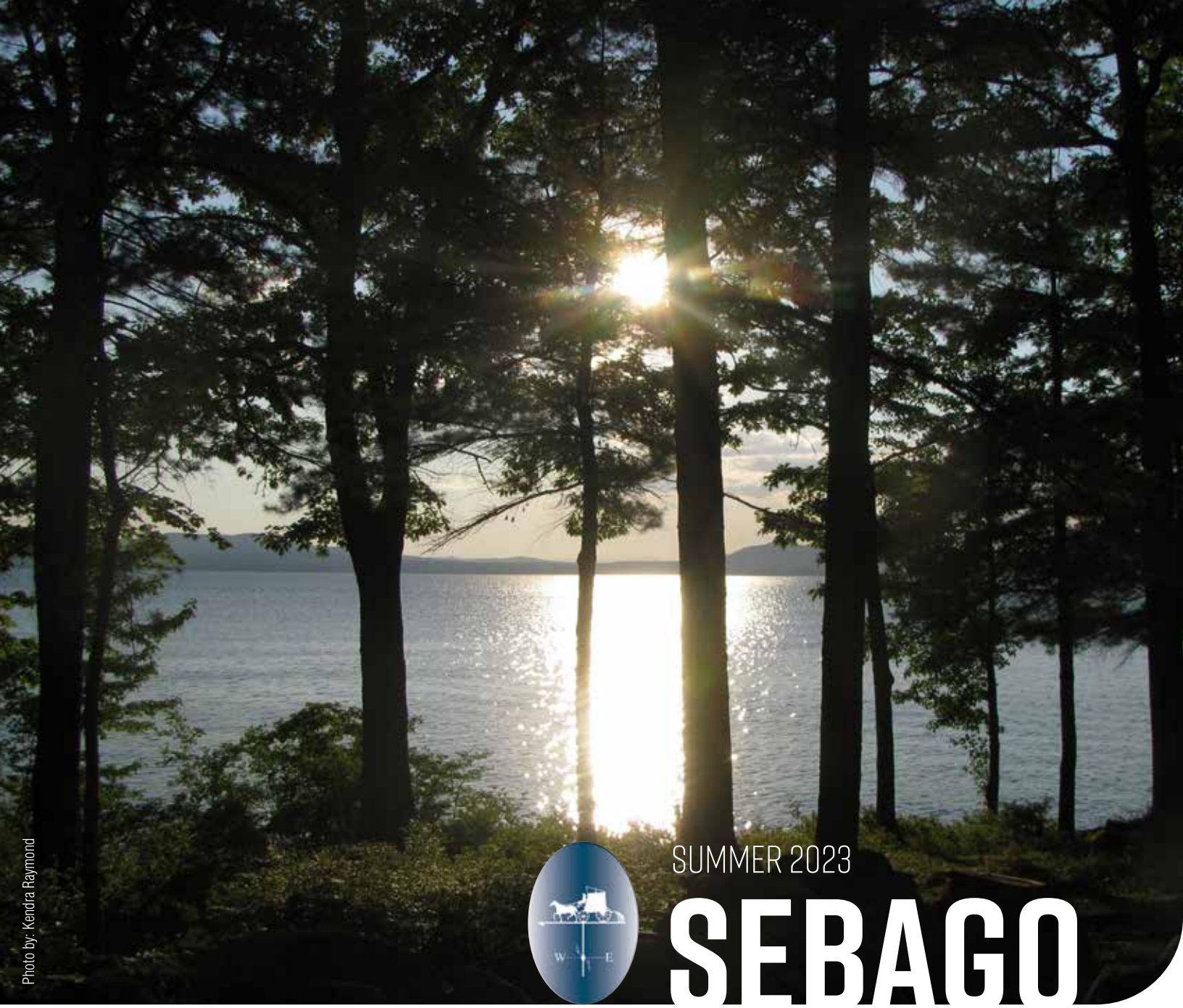


Photo by: Kendra Raymond

SUMMER 2023

SEBAGO IN DEPTH

Water, Land, Community

WHAT'S INSIDE

RESTORING A BEACH

Using Living Shoreline Stabilization Techniques

By Carina Brown
Water Resources Specialist Carina Brown can be reached at cbrown@pwd.org

The Sebago Lake State Park has experienced some of the most severe erosion on the lake. Intense wind, waves, and high water levels have toppled trees and pulled shoreline and beach sand away. Over 100 linear feet of shoreline has been lost since the 1970s in some areas. When shoreline washes into the lake, so does phosphorus, a nutrient that can cause algae blooms. As stewards of Sebago Lake, the Sebago Lake State Park (SLSP) and Portland Water District (PWD) recently partnered on a project at SLSP's popular Songo Beach swimming area. The project aims to address the erosion while serving as a demonstration site for living shoreline stabilization on a Maine lake.

What are living shoreline stabilization techniques?

Retaining walls were the first solution to shoreline stabilization, followed by riprap (angular stone). Both act as barriers between the land and lake and can deflect wave energy to neighboring sites. Living shorelines mimic undisturbed/undeveloped shorelines by using plants and other natural materials to stabilize the shore and provide a transition zone between the land and lake. Natural materials included in living shorelines can create a shoreline that gets stronger over time instead of needing routine maintenance. These methods are more cost effective for shorefront property owners and beneficial to water quality and wildlife.

Using living shoreline stabilization techniques on a Maine lake makes this project a first-of-its-kind endeavor. Now several living shoreline stabilization techniques are viewable, in action, at SLSP's Songo Beach. The structures are primarily built from trees harvested from SLSP inland forests. All parts of the tree have a part to play. You can see tree roots pointed at the lake, logs posted upright, and branches and brush woven among the logs. Other living shoreline structures on display use beach sand wrapped in coconut-fiber fabric and new plantings of native perennials.

These methods are more cost effective for shorefront property owners and beneficial to water quality and wildlife.

How do these structures function?

ROOTWADS
The rootwads absorb energy of some of the largest breaking waves.

FABRIC-WRAPPED SOIL LIFTS
The biodegradable fabric-wrapped soil lifts provide a stable upper shoreline into which the plantings can become established to create even more stability.

BRANCHES AND BRUSH
The branches and brush woven around the upright logs absorb energy from less intense waves and trap sand and sediment carried in waves.

NATIVE PERENNIALS
Once planted, native perennials like these will stabilize the upper shoreline and the soil lift fabric will decompose.

In addition to stabilizing the shore and trapping sand and sediment, another goal exists to these structures, which includes creating a better balance between keeping sediment on shore and losing sediment from the shore. This will happen over time as the beach elevation rises and the slope into the lake becomes gentler, resulting in lower-energy waves. When all of these goals succeed, the beach appearance will change. As sediment builds up in some of the structures they'll get buried and naturalized as vegetation grows, stabilizing the shore even more once those roots get established. The way it looks now is a temporary look for a long-term solution to beach erosion.

The way it looks now is a temporary look for a long-term solution to beach erosion.

A final goal is that this effort will serve as a pilot project. We want it to succeed so others with eroding shorelines will follow suit and choose living shoreline stabilization techniques instead of, or in addition to, traditional riprap. In partnership, SLSP and PWD will monitor the function of these structures and verify their success. We're hopeful the positive impact will be clearly visible to all visitors of the Sebago Lake State Park. Please visit the Songo Beach and see for yourself and visit Sebago Lake State Park's website for photos of the construction, engineering designs, and updates: maine.gov/dacf/parks/sebagolake-shoreline.shtml.

Shoreline with a vegetated buffer

Funding for this project, in part, is provided by the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act. The funding is administered by the Maine DEP in partnership with EPA.

PROFILE OF A SEBAGO PROTECTOR

Roger Mosley

Town of Standish

Retired Director of Public Works

By Chad Thompson
Source Protection Coordinator
Chad Thompson can be reached at cthompson@pwd.org

If you have lived or worked in the town of Standish in the past fifty or so years, you've benefited from the hard work and dedication of Roger Mosley, the Director of Public Works since 1994. Roger actually started working on town roads as a contractor in 1976. He probably holds the world record for driving the most miles on Standish roads. While Roger's career could fill a book, I'll use this opportunity to highlight some of the work he has done for Standish and Portland Water District (PWD).

The improvements to Maple Street where it meets the lake are a great example of Roger's positive contributions to the town and the lake. Through a partnership between PWD staff and the town, Roger paved the eroding gravel road, installed an infiltration trench to reduce road runoff, and facilitated the installation of riprap to protect the eroding shoreline. To treat runoff before it enters the lake, he helped coordinate a buffer planting above the riprap by Standish school children. The native plant buffer has become naturally established and is still

filtering runoff to this day. In recent years, Roger refurbished the fishing pier so the public would continue to have a spot to cast some lines and enjoy the beauty of the lake.

Another lake protection highlight of Roger's career is the Ward's Cove catch basin project. This project addressed significant stormwater pollution running to the lake from the network of roads between Route 114 and Sebago Lake. The town agreed to purchase and install six catch basins and outfalls and PWD agreed to pay for and conduct basin maintenance. This could not have happened without Roger's efforts to solve multiple issues along

Ward's Cove Road by relocating private water lines, septic pump-back lines, and electrical connections. At least every other year, PWD has coordinated maintenance of the catch basins with Roger. Anytime this effort has run into challenges, Roger has always worked to solve problems and facilitate solutions. These catch basins continue to protect Sebago Lake from polluted runoff to this day.

Perhaps the least known but highest profile accomplishment and lake protection effort of all was the development of Standish's Rich Memorial Beach. Though many people deserve a lot of credit, Roger played a critical

Roger and town officials planning the beach

role in developing the beach. With assistance from the Marine Corp Engineering Battalion, Roger oversaw construction. With Roger's skill, knowledge, and commitment to lake stewardship, the project was done in a way that protects the lake in both the short and long term. Jen DeRice, the Director of Parks and Recreation for Standish, manages the beach now and was also part of the development process. Here's what Jen has to say about Roger Mosley:

"Standish has been the fortunate recipient of the service and leadership provided by Roger Mosley during his career. Led by a moral compass, a thrifty can-do attitude, a true spirit of collaboration, and driven by a tireless work ethic, Roger has demonstrated a level of integrity and passion for the Standish community that is second to none."

I couldn't agree more. Cheers to Roger. If you see him, be sure to thank him for so many years of amazing service, and wish him a happy retirement. The District will miss working with him.

Photo by: Kristin Johnson

WHAT'S MAKING WAVES: AROUND SEBAGO LAKE

BE A CITIZEN SCIENTIST

Join a new citizen science effort to monitor climate change impacts on Sebago Lake. The Portland Water District and Southern Maine Conservation Collaborative (SMCC) installed a station at the Sebago Lake boat launch in Standish. You can prop your phone onto the station, photograph Lower Bay, and upload your photo to this effort's website. Your photo and others – each date stamped – will produce a time-lapse video of the changing landscape. The station is one of many established by SMCC to help document impacts of climate changes on the landscape. Explore the photos of Sebago Lake, and other southern Maine sites, at the SMCC website, chronolog.io/site/PWD101.

SUBMIT YOUR PHOTOS!

Please submit your photos for the 2024 Sebago Lake to Casco Bay calendar. Send us scenic photos of Sebago Lake, a tributary of Sebago Lake, the Presumpscot River, or Casco Bay. Visit pwd.org/publications/sebago-lake-calendar for more details about photo submission. Photo submission deadline: July 31, 2023.

Photo by: Laura Lynn

MOUNTAIN DIVISION RAIL TRAIL RECOMMENDATIONS CONSIDERED

Recently, a council of citizens established by the Maine Department of Transportation (MDOT) recommended that the abandoned railroad tracks extending from Portland to Fryeburg be removed and a walking and biking trail established within that right-of-way. A 3-mile stretch of the rail line crosses PWD-owned land and is adjacent to Sebago Lake where no bodily contact is allowed by state law. In this area, the MDOT does not have any trail rights. PWD's Board agreed to allow a trail to cross PWD-owned land in this general area but further back from the lake, providing a protective buffer for the water supply while accommodating foot and bicycle traffic. Pending legislative approval, funding needs to be acquired and an exact route is yet to be determined. It's estimated to cost over $17 million. To read the council's full report, visit: maine.gov/mdot/ofps/ruac/mdrcc/.

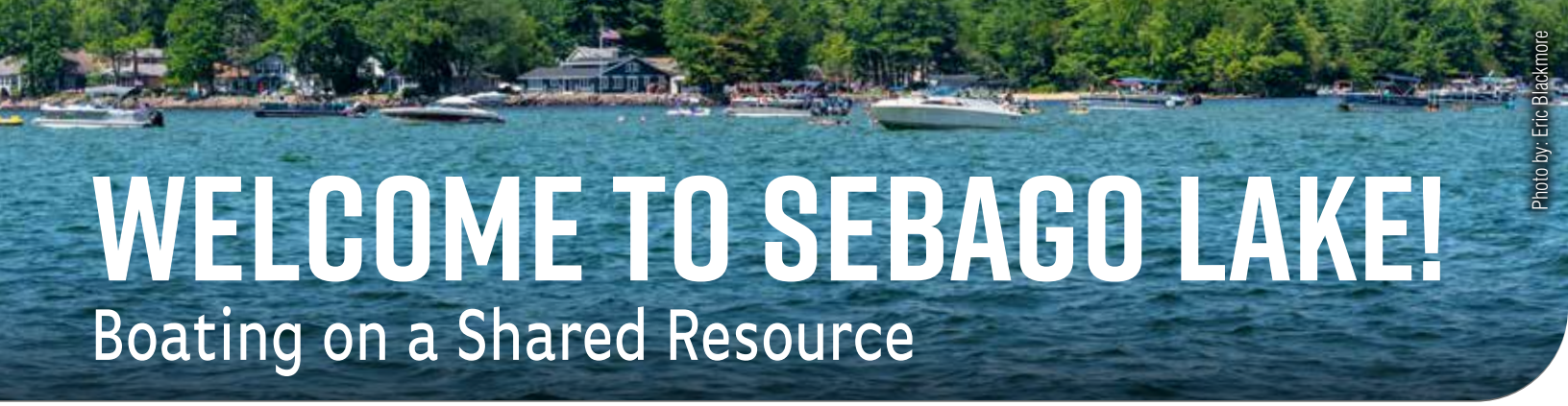


Photo by: Eric Blackmore

WELCOME TO SEBAGO LAKE!

Boating on a Shared Resource

By Amanda Pratt and Nate Whalen
Water Resources Specialists Amanda Pratt and Nate Whalen can be reached at apratt@pwd.org and nwhalen@pwd.org

Outdoor recreation has boomed over the past few years, with more and more people getting outside. Sebago Lake has always been a popular destination, with its miles of sandy beaches, summer camps, and numerous opportunities for recreation. It's important to remember that Sebago is the drinking water supply for over 200,000 people – about 1/6th of Maine's population – and that means we need to take extra care when out on the lake to protect this precious, shared resource.

DRINKING WATER PROTECTION ZONES IN LOWER BAY:

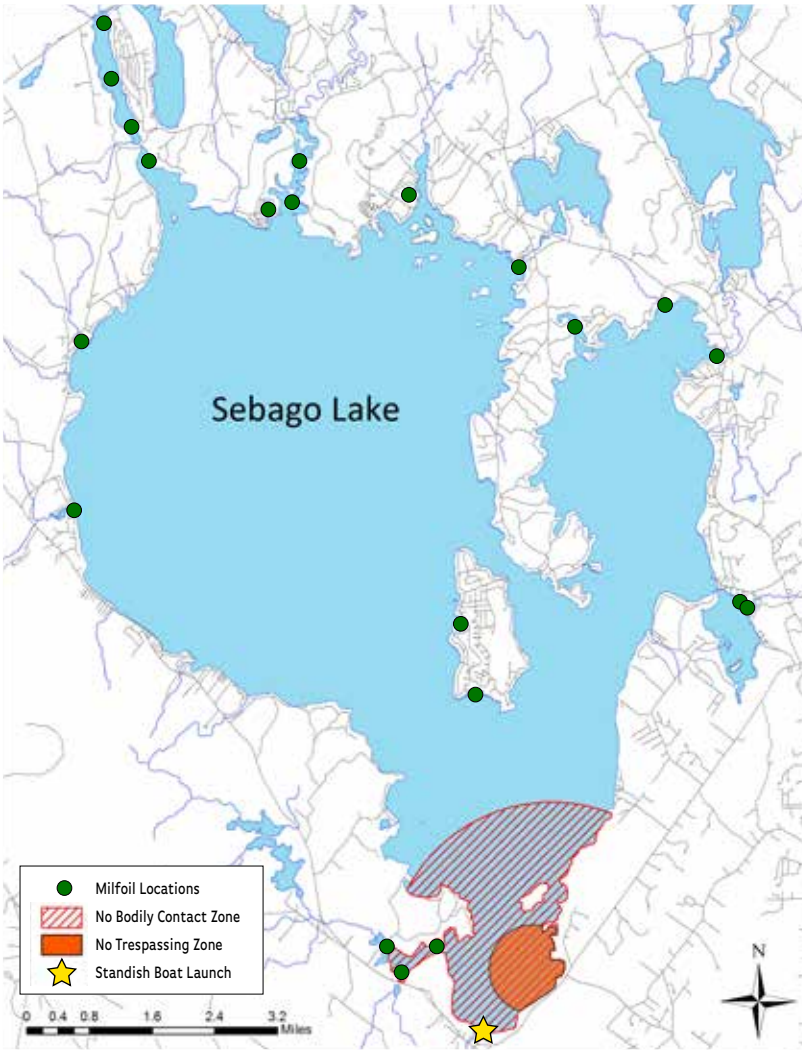
Sebago Lake is the public water supply for 11 towns in the Greater Portland area. The water intakes, located near the southern tip of the lake, are surrounded by two lake protection zones that were first established by the Maine Legislature in 1913. The outer limit is the No Bodily Contact Zone, which extends in a two-mile radius from the water intakes and is marked by buoys. Activities that involve touching the water, like swimming, water skiing, sit-on-top kayaking, and stand-up paddle boarding are prohibited in this zone. Boating is permitted except within the No Trespassing Zone. This zone is also marked by buoys and extends in a 3,000 foot radius from the water intakes. The protection zones allow the lake to be multi-use while safeguarding drinking water.

The water intakes, located near the southern tip of the lake, are surrounded by two lake protection zones that were first established by the Maine Legislature in 1913.

The Standish public boat launch is within the No Bodily Contact Zone, so be careful not to touch the water if launching here and avoid boating beyond the buoys that mark the No Trespassing Zone.

No Bodily Contact Zone buoy

No Trespassing Zone buoy



KEEPING INVASIVE AQUATIC SPECIES OUT OF THE LAKE:

Sebago Lake contains invasive aquatic milfoil, particularly in Sebago Cove, around the mouth of the Songo River, the Sticky River, Northwest River, and Long Beach Marina on Frye Island (see map for all locations). To keep these plants from spreading, always check your boat, prop, and trailer for plants before and after launching. Always dispose of any removed plant fragments far from the water. Scrub and rinse the boat with hot water if possible. Drain any water from the boat, live wells, or bilge tanks away from surface waters and dry your boat completely before and after launching at a different waterbody. Also, try to avoid boating in areas that are infested.

REDUCING WAKE IMPACTS:

Headway speed is the required speed limit within 200' of shore, including islands. This is the slowest speed you can go while maintaining steering and control of the boat, and should not generate a wake.

By maintaining headway speed near the shore, you can:

- reduce wake-caused erosion
- keep lake water clean
- protect fragile lakeside habitat
- keep shallow waters safe for families, swimmers, and other boaters

If using a wake boat, it is even more important to stay well away from the shore and in deep water to avoid damage to shorelines, fish spawning beds, loon and waterfowl nesting sites, docks, and moored boats. Because wake boats stir up more sediment than other recreational boats, and the size of wakes from wake surfing take 500 feet or more to dissipate to levels typical of recreational boats, it is recommended that wake boats stay at least 500 feet from shore and in water at least 20 feet deep.

Being on the lake in the summer is a special experience every time you are lucky enough to be out there. Please enjoy your time on Sebago Lake and do your part to ensure a pleasant, safe experience for everyone. For more boating rules and safety tips, check out Maine IF&W's Boater's Guide here: maine.gov/ifw/docs/maine-boating-laws.pdf.

Photo by: Bruce Small

PWD's Lake Map brochure *includes boating information such as depth contours and a guide to navigational aids. You can pick one up at area marinas, shops, or our office at 1 White Rock Rd. in Standish.*

DISTRICT STAFF PROFILE

Ellie Oberink

Environmental Education Intern

As the environmental education intern, Ellie supports PWD's most popular education program, WaterWays, by managing loanable lesson kits. Teachers loan out WaterWays kits with all materials needed to deliver hands-on lessons about water pollution, conservation, and stewardship that meet middle school science standards. This school year, well over 1,000 students used the lesson kits. Ellie also helped roll out a series of spring outreach initiatives.

When asked what makes Sebago Lake so special, Ellie replied that aside from its spectacular size and water quality, it's the fact that it can be used as a water supply and for recreation. Her favorite Sebago Lake fact is that at its deepest, the lake is about 10 feet deeper than the Statue of Liberty is high-meaning the Statue of Liberty could be completely submerged in Sebago Lake if ever needed.

Ellie's academic background is in environmental planning & policy and outdoor education and she has always enjoyed spending time outside. Her plans after interning with PWD are to continue pursuing a career in environmental planning and eventually apply to get her master's degree in environmental management and restoration.

Ruby-throated Hummingbird feeding on nectar of Cardinal Flower

SHOREFRONT YARDS
for Birds, Bees, and Butterflies

Native plants are beautiful, help stabilize the soil on your shorefront, and attract pollinators. Pollinators include birds, bees, butterflies, and other important wildlife who spread pollen among flowers which helps plants reproduce – an important function in a healthy ecosystem.

You can help!

Over the last few decades, pollinator populations have been declining due to disease, parasites, pesticide use, climate change, and habitat loss. You can help! Planting native plant species on your property will not only provide habitat for pollinators, but their roots will help stabilize soil and keep it out of the lake. For more information about native plants, please visit pwd.org/sebago-lakescaping-program.

Viceroy butterfly on Black-eyed Susan

CONNECT
WITH THE DISTRICT'S SEBAGO PROTECTORS

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Prefer to receive this newsletter by e-mail? Let us know! sebagolake@pwd.org

Learn about events we and our partners host around the lake and throughout the watershed by joining our email list. Send an email to sebagolake@pwd.org