



SUMMER 2022  
**SEBAGO**

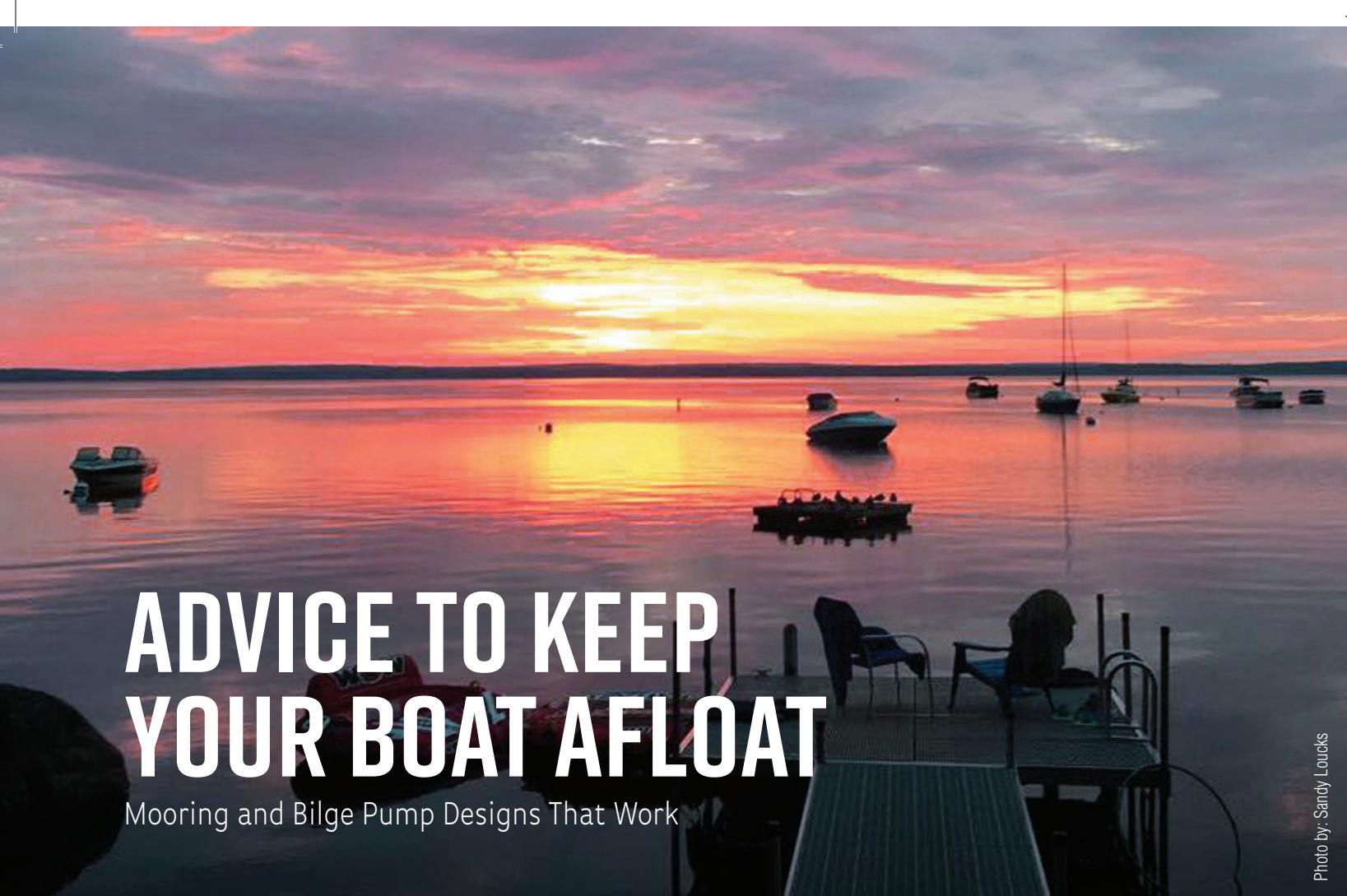
**IN DEPTH**

Water, Land, Community

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PORLAND WATER DISTRICT



# ADVICE TO KEEP YOUR BOAT AFLOAT

Mooring and Bilge Pump Designs That Work



By Chad Thompson

The number of boats out on the lake has increased each of the last two summers. Avid boaters on Sebago Lake know marina dock space is at a premium with long wait lists and increased fees if you can even find a slip. For boaters that frequent Sebago Lake often, the desire to keep their boat on the water is strong. This has contributed to an increase in the number of moorings popping up around the shoreline of Sebago Lake. Anecdotally, I spent a good portion of my childhood summer days with a fishing pole and a bobber moving from dock to dock as my dad was cleaning rental camps. My memories don't include a shoreline full of boats on moorings. The number of boats on moorings have increased multi-fold since I was a kid. For those who choose to put their boat on a mooring, there is actually a lot that goes into doing it properly, and there is a lot that can go wrong.

## WHAT CAN GO WRONG

The consequences of a mooring failure or a sunk boat are not only expensive but potentially traumatic and a risk to water quality in the lake. A boat that has come off its mooring will likely end up on the shore. Along the way it might crash into other moored boats, causing damage you are responsible for. Mooring failures often occur when it's windy and the mooring system failed as a result of the waves continuously pounding the boat. Once onshore, the boat is going to be relentlessly pounded by those same waves and likely swamped due to waves crashing over its side or holes gouged into the hull by the rocks along the shore.

Boats that sink at the mooring are potentially even worse to deal with. Not only is your boat severely compromised because it has submerged, but you have to find and hire a salvage company to pull it up from the depths. You have a short window of time to do so and to deal with any resulting contamination of the lake or you will likely face daily fines by environmental regulators.



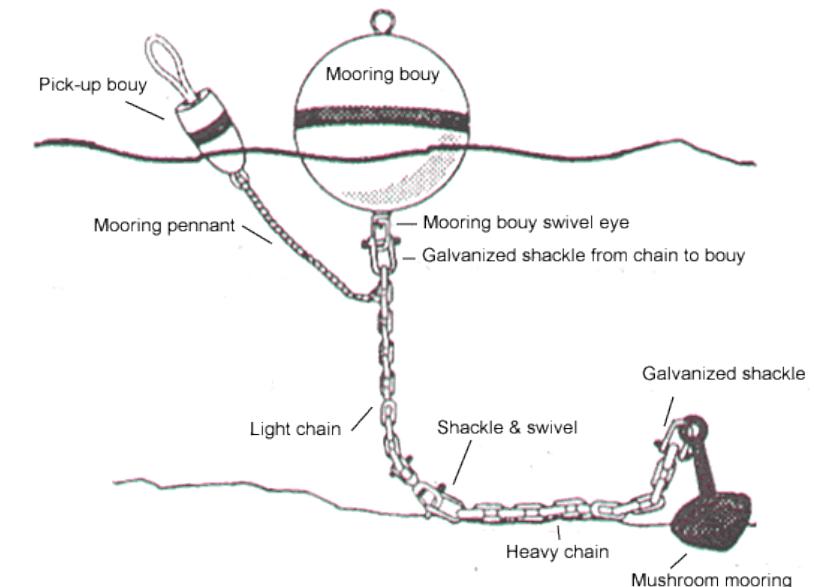
## PROPERLY PUTTING YOUR BOAT ON A MOORING

Both of the above situations can be avoided with proper planning. First off, the mooring needs to be designed for the water depth and the boat that is going to go on it—not only the length of the boat but also its weight and wind resistance. Design factors for the mooring include the style and weight of the anchor, the length and gauge of the bottom chain, the length and gauge of the top chain, shackles, swivels, buoy, and the length and style of the pennant or lead that attaches to the boat. Another important factor to consider is the swing radius your boat will have at varying water levels (Sebago varies in depth about four feet in an average year). It doesn't do any good to have a properly designed mooring if there isn't enough space for your boat to swing in the area you want to put the mooring. A good downloadable reference for mooring design can be accessed on the state of Maine website [www.maine.gov/dmr/mcp/downloads/access/moorings.pdf](http://www.maine.gov/dmr/mcp/downloads/access/moorings.pdf).

In addition to designing the mooring properly, there are several things you can do to ensure your boat stays floating on the mooring.

**The most critical part of keeping your boat floating on your mooring is working bilge pumps.**

The most critical part of keeping your boat floating on your mooring is working bilge pumps. As a result of years working in the public water supply industry, I have learned



that the best way to prevent failure is to include redundancy in the design. I say bilge pumps with an "s" because I am a strong believer that you should have at least two of them. I say "working" because bilge pumps are only as good as the batteries, wiring, and float switches that power them. To ensure that at least one bilge pump is going to work, design two completely independent systems, meaning two separate batteries, separate wiring, and separate float switches. That way if a component of one system fails, you still have another system in place as backup. I set up my systems with one bilge pump and float switch located at the lowest point in the hull and the other located a few inches higher. That way, both systems are not coming on at the same time chewing up both batteries needlessly. But if the lower bilge pump fails for whatever reason, there is another independent system there as backup.

As anyone who has had a boat on a mooring knows, things go wrong more than you would like to think. Rainy weather is probably the primary reason for failures to occur. It's rainy for a couple weeks so you don't use your boat. The whole time you are not using your boat, the bilge pumps are running to deal with the rain water accumulating in the hull. The next thing you know, your battery is dead

and the hull is full of water, or even worse, the boat has sunk. With a redundant system as I describe, there should be another fully charged battery to deal with the failure of the first system. Speaking from experience, taking the extra time to design and build a better mooring and incorporate back-up systems to deal with water that gets in the boat allows me to sleep better when the wind and rain kicks up, and I am lying in bed. A better night's sleep means a better day out boating on the Lake.

**A better night's sleep means a better day out boating on the Lake.**

Chad Thompson is the source protection coordinator at the Portland Water District. He can be reached at [cthompson@pwd.org](mailto:cthompson@pwd.org)



# PROFILE OF A SEBAGO PROTECTOR }

## Mary McFadden and Larry Stifler

Landowners of the Crooked River Headwaters

Mary and Larry have been acquiring woodlands for 43 years and recently placed their land under conservation easement. Now the woods and waters of the Crooked River Headwaters are protected from development forever.

**Q: YOU RECENTLY PLACED 12,268 ACRES OF FORESTLAND UNDER CONSERVATION EASEMENT, INCLUDING OVER 7,000 LOCATED IN THE SEBAGO LAKE WATERSHED. CAN YOU TELL US A LITTLE ABOUT YOUR LAND?**

A: Our land, which we call "Northern Retreat," consists of 77 separate deeds that we acquired, parcel by parcel, over the last 43 years. Our goal has been to "un-fragment" and protect the land. Over the last four decades, we added many miles of hiking trails which we shared with the public for outdoor recreation. The land is located in four towns: Albany Township, Greenwood, Norway and Waterford. The property is scenic, with seven mountains, six ponds, and rivers and streams. We have been told that the land has a diverse mix of trees, and that only 10% of Maine's forests have historical mixes of forest like ours. Most of the land is in Tree Growth. We let the trees grow so the forests have become more mature during our ownership. People have asked, "how did you put so much land together?" Larry likes to joke that we just outlived our neighbors.

**Q: WHY DID YOU DECIDE TO CONSERVE IT?**

A: We founded a land trust in Wareham, MA in 2000, and Mary has served on the board of the Land Trust Alliance and other conservation organizations, so conserving the property has been a goal of ours for a long time. It is important to us to protect natural resources and provide wildlife corridors. We wanted to let the forests grow and have created many miles of hiking and mountain bike trails that we leave open to the public.

**Q: HOW DO YOU THINK PROTECTING YOUR LAND FROM DEVELOPMENT WILL IMPACT SEBAGO LAKE?**

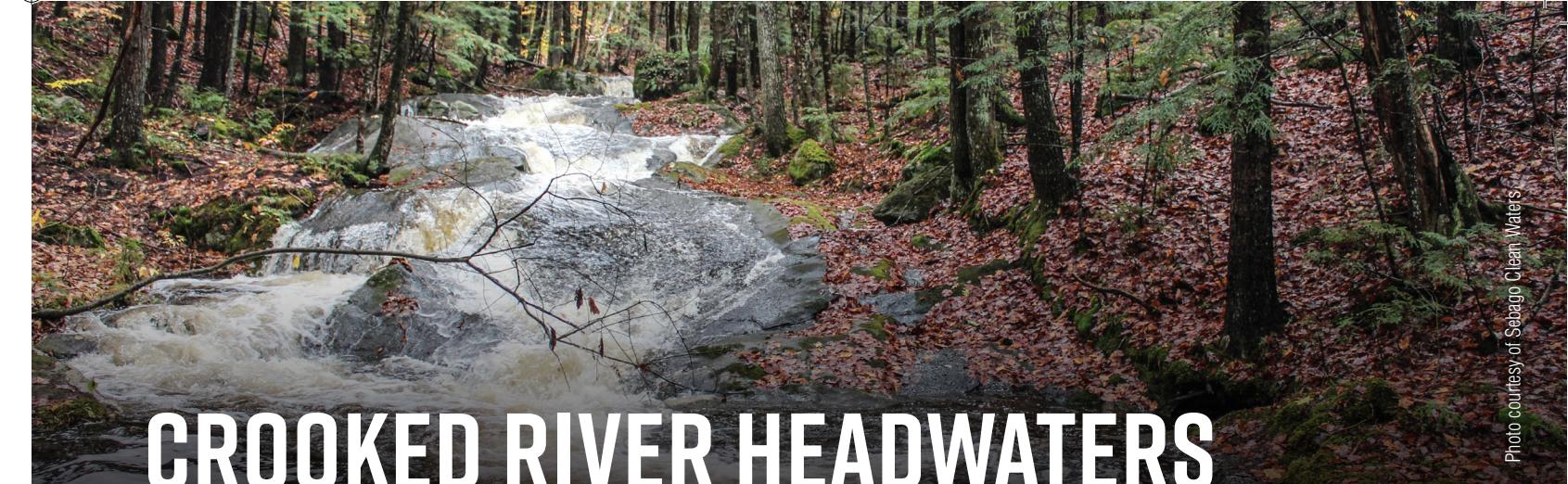
A: There are numerous ponds, rivers, brooks and streams on the land. The forests act like a natural filter for clean water. We are delighted to know that this project alone will add many thousands of acres to preserve forests that will continue filtering and providing clean water for the Sebago Lake watershed. We are thrilled to think that our land is filtering the drinking water for the people in greater Portland. One out of six Mainers drinks this water. The land also provides other ecosystem services that people take for granted, like clean air and carbon sequestration that are becoming increasingly important with climate change.

**Q: WHAT IS YOUR FAVORITE WAY TO ENJOY YOUR CONSERVED LAND?**

A: We love to hike, canoe, fish and swim. We also love to meet people on our trails and strike up conversations. Although we aren't hunters ourselves, we have made the land available for most forms of hunting. We also learned that the historic Bumpus Mine is on the land, and that eventually led to the establishment of the Maine Mineral and Gem Museum in Bethel in 2012, something that would not have happened if we hadn't acquired this land.

**Q: IS THERE ANYTHING ELSE YOU WOULD LIKE TO ADD?**

A: We hope that we can be role models for others, and that what we have done will encourage others to permanently conserve their lands as well. They can work with land trusts in their areas to conserve the beautiful Maine landscape and its natural resources. There are increasing development pressures in western Maine, and they aren't making any more land!



# CROOKED RIVER HEADWATERS

Photo courtesy of Sebago Clean Waters

## DISTRICT CONTRIBUTES TO HISTORIC SEBAGO CLEAN WATERS CONSERVATION

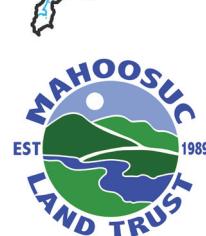
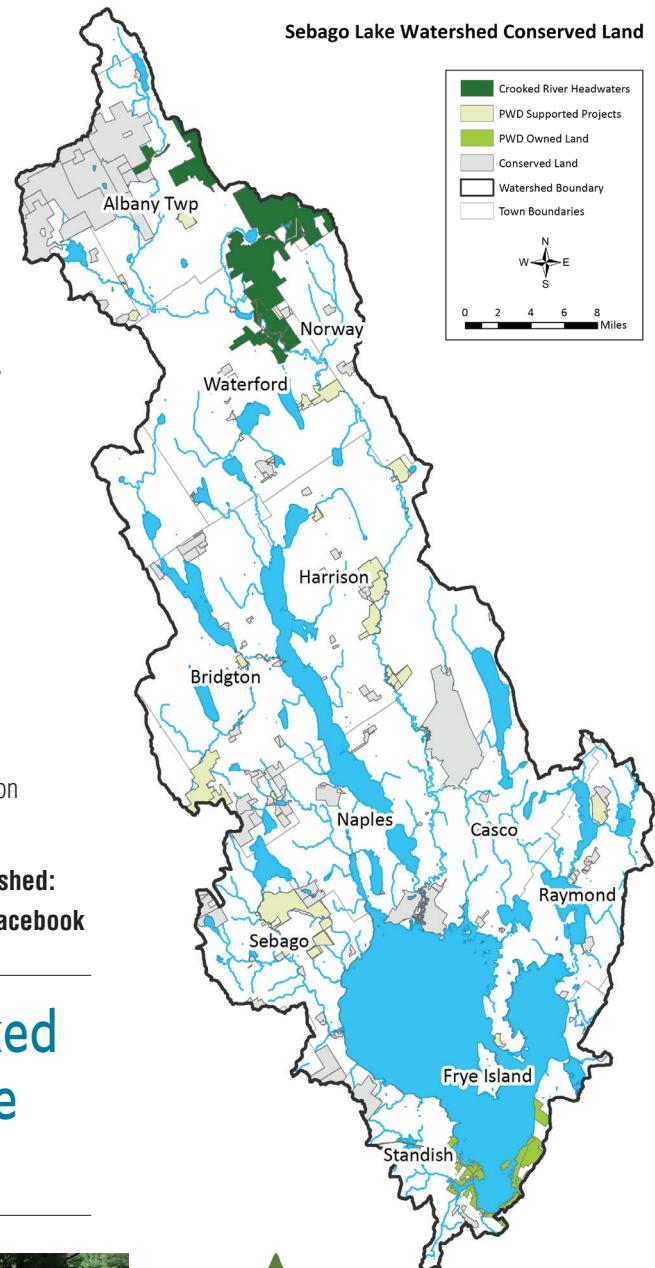
Conservation of more than 12,000 acres of critical forestland at the headwaters of the Crooked River—Sebago Lake's largest tributary—finalized in December 2021, marks the largest land conservation project Portland Water District has contributed to since the creation of its Land Conservation Program and Sebago Clean Waters. Sebago Clean Waters is a coalition of 10 organizations, including the District, whose goal is to conserve 35,000 more acres of land in the Sebago Lake watershed.

Sebago Clean Waters partner Mahoosuc Land Trust holds the easement on the lands now called the Crooked River Headwaters, more than 7,500 acres of which are in the Sebago Lake watershed. The easement accomplishes 21% of SCW's land conservation goal. Portland Water District supports land conservation projects in the watershed because, by naturally filtering water, forested land helps to protect the water quality of Sebago Lake.

The landowners, Mary McFadden and Larry Stifler, generously donated the majority of the easement's value to the project. The easement would not have been possible without the partnership of The Conservation Fund and significant funding from a five-year award to Sebago Clean Waters from the Natural Resources Conservation Service through their Regional Conservation Partnership Program (RCPP) program. Other sources of funding included: Portland Water District, additional Sebago Clean Waters funds, The Conservation Fund, The Nature Conservancy, and the Maine Mountain Collaborative.

To learn more about Sebago Clean Waters and conserving land in the watershed: [www.sebagocleanwaters.org](http://www.sebagocleanwaters.org) and @sebagocleanwaters on Instagram and Facebook

**More than 7,500 acres of the Crooked River Headwaters are located in the Sebago Lake Watershed.**



# WHAT'S MAKING WAVES: AROUND SEBAGO LAKE

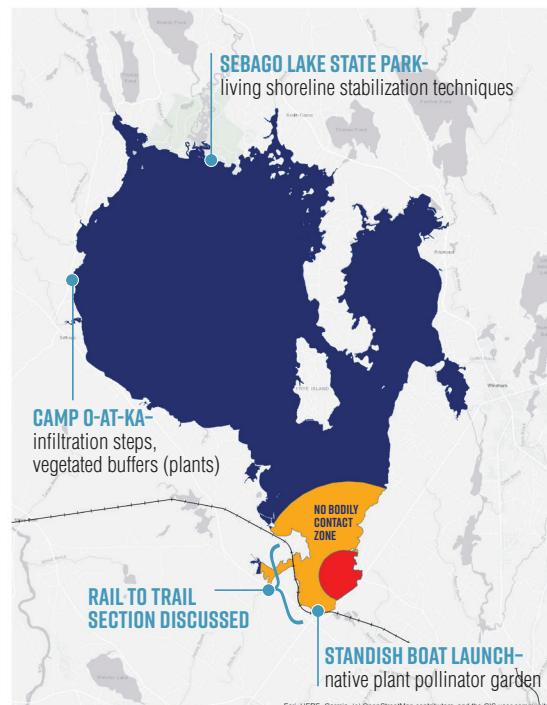
## RAIL TO TRAIL PROPOSAL NEAR SEBAGO LAKE

The Maine Department of Transportation established an advisory council in 2021 to investigate using the dormant Mountain Division rail line as a recreational trail. The District is participating on the council which is studying the concept of connecting the existing segments between Standish and Fryeburg. Part of the Standish section runs through District property adjacent to the legislatively-established No Bodily-Contact zone. The District's Board of Trustees have indicated a willingness to consider a trail on PWD property, provided it is safely set back from the shoreline. The Council will submit a report to the Commissioner of Transportation later this year.

## PROJECTS TO REDUCE EROSION AROUND SEBAGO LAKE

The District, in partnership with Cumberland County Soil and Water Conservation District, will use grant funds\* at several sites along Sebago Lake's shoreline to prevent polluted runoff from making its way to the water. Sites include the Standish Boat Launch, Sebago Lake State Park's swimming beach and group use areas in Casco, and Camp O-AT-KA in Sebago. Look for these new lake protection measures later this year: native plant pollinator garden, living shoreline stabilization techniques, erosion control mulch, infiltration steps, vegetated buffers, and more.

\*Funding for this project is provided in part 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.



## VOLUNTEER OPPORTUNITIES

### ANNUAL LOON COUNT

On the third Saturday in July, the Maine Audubon Society conducts the annual Loon Count across the state of Maine. Thousands of volunteers set out on lakes at the same time to count and document the number of loons, loon chicks and nesting locations. The count provides information on the health of the state's loon population. If you would like to participate in the count, please contact the Maine Audubon loon coordinator at [conserve@maineaudubon.org](mailto:conserve@maineaudubon.org) for more information.

### GIS ASSISTANCE FOR WESTERN FOOTHILLS LAND TRUST

Do you have GPS or GIS skills? Would you like to help protect the land that provides us with clean water, beautiful trails and views for recreation, wildlife habitat, and our Maine way of life? Our partner, Western Foothills Land Trust, is looking for volunteers! Contact them at [info@wfltmaine.org](mailto:info@wfltmaine.org) or 207-739-2124

## GRANT FUNDS AVAILABLE

### IMPROVE YOUR PROPERTY AND PROTECT THE LAKE!

Is your property within 250 feet of Sebago Lake or one of its tributaries? Portland Water District provides free consultations and reports on how to make your property more attractive and lake friendly.

Private landowners may be eligible for a matching Sebago Lakescaping grant of up to \$1,000. Associations, municipalities, businesses, or other groups may be eligible for a matching grant of up to \$2,000.

Contact us at [sebagolake@pwd.org](mailto:sebagolake@pwd.org) to get started!



## LAKE FOAM: NATURAL OR POLLUTION?

One of the most common questions we get is about lake foam. People want to know if lake foam is normal or if the water is being polluted by detergent or soap.

Lake foam is usually natural, and forms when the surface tension of water is decreased and air is mixed into that water. Organic, decaying plant matter and animals are often a source of the reduction of surface tension on the water. Wind pushes on the surface tension which is how the air gets mixed in. That same wind is also what pushes the foam to shore, concentrating it together and catching the eye of lake users.

It is very rare that the foam you observe in lakes and streams is pollution. Natural lake foam is not harmful. It's a normal biological process that can easily be distinguished from detergent.

There are a couple of tests to determine if the foam you're seeing on the lake is natural or detergent. The first test is easy: give the foam a quick sniff and observe it. Lake foam can often be light brown or smelly due to the decayed organic matter. Detergent, of course, will likely have a soapy-chemical scent and will feel slippery to the touch.

The second method is the jar test. To determine if your lake foam is natural or not, collect some of the foamy water in a jar and shake it up. If the foam is detergent, it will produce more bubbles while natural foam will dissipate upon shaking.



## DISTRICT STAFF PROFILE }

**Paul Hunt**  
Environmental Services Manager

Paul has been with the District for 23 years. Over that time, he is most proud of helping to recruit talented people who manage their many roles and projects independently and take pride in doing quality work. He manages 15 employees who coordinate about 130 programs vital to the smooth functioning of Maine's largest water and wastewater utility, including: patrolling Sebago Lake's Lower Bay, collecting and analyzing water samples, inspecting shoreland zone projects, and teaching lake stewardship principles. Paul loves the Red Sox, music, and using metaphors. He's also committed to his work and being a voice for Sebago Lake. Paul describes his passion for the environment as simply the desire to leave it clean and safe for the next generation. We call that stewardship, which translates well to his role in lake protection. In a hundred years, he wants Sebago Lake to look just like it did when he first looked at it.

One question guides Paul's lake protection principles, "Is this good for the long-term health of Sebago Lake?" It seems to be a good approach because when asked what has changed the least in his career, Paul states, "Sebago Lake water quality is not significantly trending, either up or down, over the last 40 years, which means the treatment of water is the same." Treatment changes over the last 40 years have been due to regulatory requirements, not changes in Sebago Lake's water quality.

Paul will humbly brush it off, but he was the catalyst at the District for adoption of land conservation policies and the formation of Sebago Clean Waters, without which, Crooked River Headwaters (page 5) would not have been possible. The "Big Deal", as Paul refers to it, is the culmination of many people's efforts over decades. For Paul, that began about 15 years ago when he recognized the need to protect forests beyond the shoreline from development. He recalls realizing the solution while at a training hosted by The Nature Conservancy, "These are the people who can help with strengthening lake protection through forest conservation. And you know what they wanted? They wanted to partner with a municipal type organization." With Paul's persistence and support within the District, financial contributions to land conservation have been approved over and over again. Local land trusts can more easily conserve forests in the watershed, which guarantee clean runoff moving towards the lake forever – a pretty excellent long-term solution to Sebago Lake protection.



# SHARE YOUR SEBAGO LAKE PHOTOS WITH US!

Each year the District publishes an Images of Sebago Lake calendar. The eighteenth edition will be published this fall and you are invited to share your photos for consideration. Once submitted, a committee of Portland Water District staff will review and select photos based on many variables. We accept pictures containing Sebago Lake and its tributaries – the streams and rivers that flow into the lake. All photographers receive a complimentary copy of the calendar! For more information <https://www.pwd.org/outreach>



## CONNECT WITH THE DISTRICT'S SEBAGO PROTECTORS

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[sebagolake@pwd.org](mailto: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](mailto:sebagolake@pwd.org)

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