



CLEAN DRINKING WATER INITIATIVE

BOOTHBAY REGION

MEMBERS:

Boothbay Region Land Trust
Boothbay Region Water District
Town of Boothbay
Bigelow Laboratory
for Ocean Sciences
Boothbay Region YMCA

Town of Boothbay Harbor
Coastal Maine Botanical Gardens
Knickerbocker Lake Association
Town of Southport

MISSION:

The BR CDWI mission is to forever safeguard the Boothbay Region's public drinking water supply through land conservation, education, stewardship, and community collaboration.

NEW INITIATIVE FOCUSES ON DRINKING WATER PROTECTION

Clean water is one of our most precious natural resources. It is fundamental to the vitality of our region, for everything from community health to economic development, recreation, and overall sustainability. Adams Pond and Knickerbocker Lake are the sole sources of public drinking water in our region, serving the towns of Boothbay, Boothbay Harbor and Southport year round. The long-term protection of our water supplies and the watersheds that they are dependent upon is essential to our community's future.


What started as a conversation between the Boothbay Region Water District and the Boothbay Region Land Trust about protecting our public water supply evolved into a unique collaboration called the Boothbay Region Clean Drinking Water Initiative. The Initiative's members are the Boothbay Region Water District, Boothbay Region Land Trust, Bigelow Laboratory for Ocean Sciences, Boothbay Region YMCA, Coastal Maine Botanical Gardens, the Knickerbocker Lake Association, and the towns of Boothbay, Boothbay Harbor and Southport. These diverse and talented organizations have joined forces with a shared vision of safeguarding the region's public drinking water sources through land conservation and education.

Adams Pond and Knickerbocker Lake's health is inseparably linked to their watersheds. A watershed is simply all the land that drains, both surface and groundwater, to a particular waterbody. What happens in the watershed plays the major role in ensuring that the region's water supply remains healthy and clean. Studies here and around the world have shown that when undisturbed watershed land is converted to developed areas there is a large increase in the amount of nutrients and other pollutants released to water bodies. As watersheds are developed, and natural areas are converted to buildings, parking lots and roads, water quality in receiving water bodies declines.

When it comes to water quality protection, the best thing for any water body is to be surrounded by natural, undisturbed vegetated land. Intact forests are particularly important, capturing stormwater, filtering out contaminants and recharging the aquifer. A 2018 study prepared by Forest Bell Environmental for the water district projected a need to maintain about 75% of Adams Pond and Knickerbocker Lake watershed land as undeveloped to safeguard water quality. Currently only about 30% of Adams Pond and 10% of Knickerbocker Lake watersheds are permanently protected from development.

While both Adams Pond and Knickerbocker Lake meet state water quality standards today, if their watersheds continue to be developed, it is a virtual certainty that water quality will suffer. Maine Department of Environmental Protection has listed both lakes as threatened and at most risk from new development. Recent changes in precipitation patterns, such as extreme rain events and prolonged droughts, exert additional stress on these water bodies.

Fortunately, much of the land in both watersheds remains undeveloped and we, as a community, have an opportunity to act to protect our water sources before they are degraded. Right now, only a fraction of the undeveloped watershed is permanently conserved. With careful planning and additional land conservation around our vulnerable watershed, we can avoid water quality declines that have the potential to impact our region's health and economy.

The Boothbay Region Clean Drinking Water Initiative has begun to work with watershed landowners and the greater community to keep our drinking water clean and our community healthy. We have secured grant funds to expand our efforts in the future. We hope you will join us in protecting our water supply! 

LIVING IN THE WATERSHED


A watershed is all the land that drains to a waterbody. While precipitation does fall directly on Adams Pond and Knickerbocker Lake, most of the water replenishing our public water supply lakes comes from their watersheds. More than one billion gallons of water flow into Adams Pond and Knickerbocker Lake from their watersheds every year.

The water that flows into the lakes from the watershed is essential to maintaining the volume of water in our lakes and it has a large effect on water quality. Forested areas of the watersheds are better able to slow down and capture storm water, filter out contaminants and recharge the aquifer. In the developed portions of the watershed, runoff and erosion from hard surfaces, as well as contaminants associated with septic systems, motor vehicles, pesticides, and fertilizers are carried downstream to the lakes.

If you live in Adams Pond or Knickerbocker Lake watershed, hopefully, you enjoy the many benefits of having a beautiful lake nearby. We hope you also recognize how important the choices you make on your property are to lake health. Addressing runoff, maintaining natural vegetated buffers along shorelines, mulching or planting bare soils and using conservation practices, such as infiltration steps or

roof dripline trenches, can go a long way to protect lake water quality.

To help watershed property owners and water quality, the water district offers a lake-friendly grant program. Watershed landowners can get technical and financial help to make their property more lake friendly. If you have a specific problem you want to address or just want a site visit to talk about possibilities, contact the water district to schedule a site visit. Any agreed upon steps you decide to take to address pollution sources, BRWD will provide up to \$1,000 in matching funds. This grant includes replacing failing septic systems or heating oil tanks.

For more information on this program, call Sue Mello at 350-3127 or email her at suem@bbrwd.org. 

Simple acts, such as this infiltration trench, can mean a lot less runoff and nutrients to lake waters.



Conservation Options

A GUIDE FOR MAINE LANDOWNERS



CONSERVATION EASEMENTS

What do we mean by conserving watershed land?

Right now, all the protected watershed land is owned by the water district or Coastal Maine Botanical Gardens. But much more undeveloped watershed land is held and managed by private landowners. Landowners, who have a long history of owning and caring for their land, may not wish to transfer it to another entity. In cases such as this, a conservation easement offers a way to permanently protect your land while maintaining ownership.

A conservation easement is a voluntary, legally binding agreement between a landowner and a land trust (or other qualified entity) through which certain rights to the property are permanently transferred. Most often, these agreements prohibit future development of the property, but easements can also be designed to protect specific values, such as: ecological, recreational, scenic, or historic.

Importantly, after granting the easement the landowner retains title to and ownership of the land along with all rights not transferred through the easement, such as the rights to live on the property and manage it as productive forest. Because the landowner retains ownership of their property, they also may sell it or pass it onto their heirs, knowing that it will be permanently conserved as agreed upon in the easement. (continued on page 4)

BIGELOW LABORATORY LEADS A NEW PROJECT TO ASSESS HARMFUL ALGAE

Algae are a fundamental part of the aquatic ecosystem and food web. But when too many nutrients run off the land into lakes and coastal waters, the algae population may grow out of control, blooming into a slick, matted mess that restricts recreation and can starve fish of oxygen. Some species of algae, such as cyanobacteria, can also be toxic, causing rashes, nausea, and illness in humans and pets. Many coastal and lake communities across the Northeast and Maine have long struggled with harmful algal blooms (HABs).

This summer, researchers at Bigelow Laboratory are working to assess harmful algae in Adams Pond and Knickerbocker Lake. The project is led by Dr. Rachel Sipler, a Senior Research Scientist and director of the Water, Health, and Humans Initiative, in partnership with Bigelow Laboratory scientists Pete Countway and Robin Sleith. The goal is to catch problems before they threaten the drinking water supplies.

Sipler is Bigelow Laboratory's representative on the Clean Drinking Water Initiative steering committee. She brings to the partnership scientific expertise and analytical capacity to allow the group to assess the risks from HABs and other potential contaminants.

“Our role is to both target the science needs for the system and better understand the data we have,” Sipler said. “There’s important scientific measurements that Bigelow Laboratory can contribute that are beneficial to the Clean Drinking Water Initiative and, more broadly, to those of us living and working in this region.”

This summer, HABs monitoring is the focus of the Clean Drinking Water Initiative's science efforts and is supported by a Source Water Protection Grant from the Boothbay Region Water District. The water district, in conjunction with the its routine lake monitoring program, is collecting samples from both lakes, twice a month through the HABs season into September. Bigelow Laboratory is then analyzing those samples to assess the composition of the algae population and its toxicity. The work builds off HABs research the state and other Bigelow Laboratory scientists have undertaken across Maine for years, providing context on the conditions of lake systems across the state.




Sometimes “going green” is a bad thing. Algae blooms are a nuisance but they can also be a health concern. (Photo Maine DEP)

Though HABs are not new to Maine's waterways, Sipler said they have been on the rise in recent years.

“We know that increasing nutrient runoff and rising temperatures are the leading causes of increasing HABs across the globe,” Sipler said. “Maine is experiencing both.”

While there have been some exploratory studies of HABs in Adams and Knickerbocker previously, this new focused study provides more real-time information than has ever been available.

While this research project is ongoing, it's important for lake users to use caution if the water looks green or cloudy, smells bad or has scum on the surface. If you observe these conditions, do not go into the water, and do not let your pets in the water. Please contact Boothbay Region Water District (207-633-4723) and report your observations. 

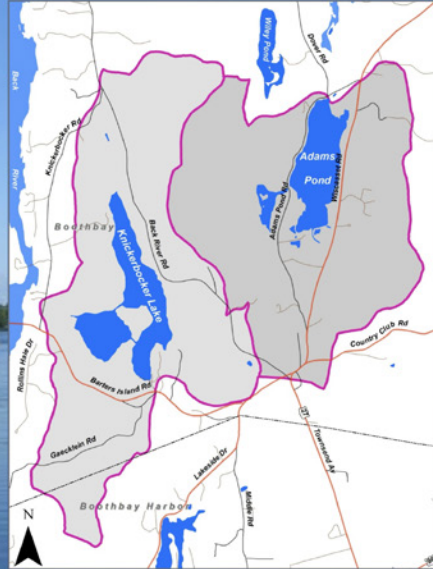
What You Can Do To Protect Boothbay's Water Quality

Low impact living in Adams Pond & Knickerbocker Lake Watersheds

Maintain natural vegetation
&
increase vegetated buffers

Pick up pet waste

Cover bare soil with
seed, plants or mulch



Minimize use of
fertilizers, pesticides
& herbicides

Pump septic tank
regularly

Use only phosphate-
free cleaning aids
& fertilizers

The greatest threat to Adams Pond and Knickerbocker Lake is nonpoint source pollution associated with development. You can improve the water quality of our lakes by employing best management practices.



A big THANK YOU to our town representatives and volunteers!


Town representatives Jeannie Hamrin, Jean Hawley, and Leslie Volpe, have done a great deal of work and an outstanding job for the CDWI! The CDWI is also grateful for the many other volunteers from our member organizations and the Knox Lincoln County Soil and Water Conservation District. Please extend your thanks if you see them in the community! If YOU wish to volunteer, please reach out to us at cleandrinkingwater@bbrrt.org.



CONSERVATION EASEMENTS (continued from page 2)

Further, donated conservation easement can provide significant tax benefits. One of those benefits is a deduction for federal income taxes in an amount equal to the difference between land value before the conservation easement was placed upon it, and its reduced value afterwards. Assume that difference in value to be \$100,000, which is the amount or value

effectively donated for conservation. That \$100,000 donation can then be used as a deduction to reduce the donor's taxable income by up to 50% in any given taxable year. And the deduction may be spread out and used, in whole or in part, at any time over a 15 year period.

Please contact us at cleandrinkingwater@bbrrt.org for more information on easements. 

You may have seen us at many events and venues this past year; more are planned. Check out our website (cleandrinkingwater.bbrrt.org), our Facebook page, or contact us at cleandrinkingwater@bbrrt.org to keep up with us in our community.