



Take a dive into water turnover as lake cools

Have you ever leapt off a dock and felt the water suddenly turn colder the deeper you went, only to warm up again when you resurfaced? That cold rush is evidence of thermal stratification, the natural system of layering that happens each summer. Warm, lighter water floats on top, while the cold, dense water settles at the bottom. In between, there's a middle zone marked by a rapid drop in temperature.

That boundary is called the thermocline, an invisible dividing line between the warm surface and the cold depths. As summer goes on, the surface layer thickens with contin-

ued warming, and the thermocline sinks deeper into the lake before fall arrives.

All summer long, Lake Winnepesaukee holds onto these layers. The sun-warmed surface, called the epilimnion, mixes with the air and is full of oxygen. It's the zone most familiar to us, where swimmers and boaters spend their time and where warm-water fish like bass and sunfish thrive. Colder-water species such as lake trout,



By **BREE ROSSITER**
Lake Winnepesaukee Alliance

on the other hand, stay deeper, often near the thermocline where the water remains cool but still has enough oxygen to support them.

Down below, the hypolimnion stays chilly, dark, and cut off from contact with the surface. In late August, our monitoring showed the deep sites hovering between 7–10 °C (45–50 °F), a sharp contrast to the much warmer surface layers. Between the layers, the metalimnion

acts like a barrier, slowing down mixing between the top and bottom. By late summer, the separation becomes so strong that oxygen in the deepest waters runs low, a natural signal that the lake is preparing for one of its biggest seasonal resets — lake turnover.

Turnover happens in the fall, usually in October, when the air cools enough that the surface waters become heavier and start to sink. As the winds strengthen and cool weather sets in, the lake is stirred until the layers finally break down. Suddenly, the entire lake is

see **TURNOVER** page 28



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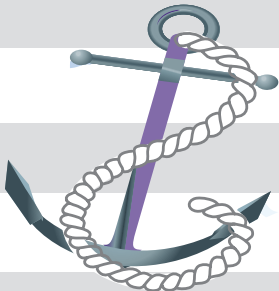
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Moultonborough Library hosts programs to protect local lakes

MOULTONBOROUGH — Moultonborough Public Library is hosting two free programs in September designed to help community members learn practical ways to protect and improve the quality of our local lakes, ponds, and streams. These events will provide information on both the history of local conservation efforts and specific actions individuals can take.

On Thursday, Sept. 4, at 6 p.m., local resident and founding member of Boots on the Ground Kevin Kelly, will present a talk on the evolution of Moultonborough's water quality. He will highlight the positive impact volunteers have had locally and share how the community has successfully implemented strategies

to reduce water pollution, particularly from stormwater runoff. Boots on the Ground is a volunteer organization dedicated to protecting Lake Kanasatka from this type of pollution.

On Tuesday, Sept. 23, at 6 p.m., ecological landscaping designer Kat Holder will present "Your Garden Can Save the Lake." This program will focus on practical stormwater management strategies that homeowners can implement on their own properties. Holder will explain how features like rain gardens can use plants to filter and trap sediment and nutrients before they enter our local waterways.

For more information, visit moultonboroughlibrary.org.

Mount Washington Observatory: Home of the world's worst weather at Wolfeboro library on Sept. 10

WOLFEBORO — Join Mount Washington Observatory's Executive Director Drew Bush, on Wednesday, Sept. 10 at 6 p.m. at the Wolfeboro Public Library as he shares photos and videos that explore the extreme weather found right here in New Hampshire on the Northeast's highest peak: Mount Washington.

This program, a fan favorite, provides a broad perspective from the Observatory's founding in 1932 to current day operations, as the organization works to become an international hub for scientific learning and research.

It's hard to believe that a moun-

tain with such deadly conditions can be found right here in New England. During this presentation, Bush will help the audience to understand the science behind how this small mountain has gained the reputation as the "Home of the World's Worst Weather."

He will also take the audience on a journey exploring the early history of weather observation on Mount Washington all the way up to the cutting-edge projects and programs Mount Washington Observatory undertakes today.

For more information, visit wolfeborolibrary.org.



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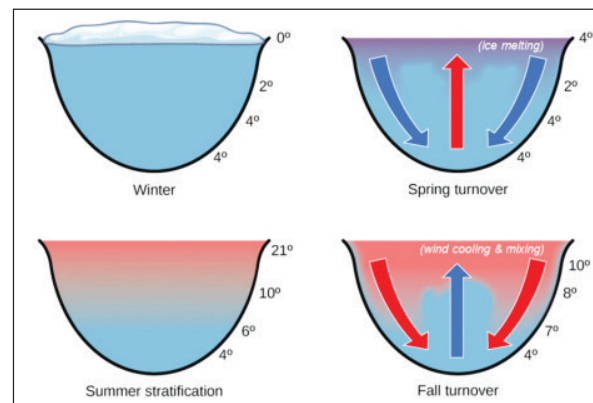
isothermal, meaning the temperature is the same from top to bottom. At this point the lake can fully mix, carrying oxygen from the surface all the way to the deepest parts. It's like hitting the refresh button for the ecosystem.

Since April, the Lake Winnepesaukee Alliance has been sampling temperature and dissolved oxygen at 12 of the lake's deepest sites every month. This long-term monitoring gives us a detailed picture of how the lake changes with the seasons. Our most recent results showed oxygen levels running low in the deepest waters, a normal late-summer pattern in stratified lakes.

While the layers remain strong for now, this depletion signals that the seasonal shift is coming and that turnover is on the horizon. Without these measurements, the changes happening beneath the surface would remain invisible to most of us.

This natural mixing doesn't happen just once, it's part of a rhythm that repeats twice a year, in both spring and fall. Lakes like Winnepesaukee that mix twice annually are called dimictic. In late autumn, this turnover carries oxygen from the surface down to the depths, where it sustains aquatic life through the long winter months, when the lake is sealed under ice and no new oxygen can mix in from the air. Turnover is a vital part of the lake's cycle of renewal, ensuring that life beneath the surface continues to thrive.

So, the next time you dive in and feel that sudden chill, remember it's more than a shock to your system, its stratification, the layering that sets the stage for turnover each fall. When those layers finally mix, the process of turnover refreshes Lake Winnepesaukee and keeps life thriving below the



The turnover process between warm and cool water occurs twice a year in Lake Winnepesaukee — once in the spring and again in the fall — and it plays a critical role in maintaining the lake's ecosystem. (Courtesy photo)

surface. Our responsibility is to give the lake clean water to work with. By reducing polluted storm-water runoff, sharing best practices, and supporting local lake organizations, we can help keep this cycle strong for generations to come.

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Bree Rossiter is the conservation program manager for the Lake Winnepesaukee Alliance. She manages the water quality monitoring program, cyanobacteria monitoring initiatives, the Winni Blue/LakeSmart program, and assists with watershed management planning efforts. Bree can be reached at brossiter@winnepesaukee.org. The Lake Winnepesaukee Alliance is a nonprofit dedicated to protecting the water quality and natural resources of the lake and its watershed. To learn more, visit winnepesaukee.org.

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Scout Troop 68 celebrates decades of scouting with reunion event on Sept. 16

LACONIA — Scout Troop 68 will host former and current scouts, leaders, and their families for a special reunion event celebrating more than 80 years of scouting in and around Laconia. The reunion will take place on Tuesday, Sept. 16, at VFW Post 1670 from 6:30 to 8 p.m.

The gathering will honor the troop's history of outdoor adventure, community service, and character-building. Attendees will have the opportunity to reconnect with old friends, share Scouting stories, and see historical photos and memorabilia from the troop's past.

"Troop 68 has served the youth of Laconia since the 1930's by providing outdoor adventures and skills building" said Troop Committee Chair Glenn Smith. "For generations, our troop has instilled the values of the Scout Oath and Law. This reunion is a chance to celebrate the impact scouting has had on so many lives and to ensure that legacy continues for future generations."

To RSVP, email troop68laconia@gmail.com.

Fall hunting seasons start Monday

BY DAVID BROOKS
CONCORD MONITOR

Autumn hunting is about to start up in New Hampshire with the opening of black bear, gray squirrel and Canada goose season on Labor Day, followed by the more popular archery seasons for turkey and white-tailed deer two weeks later.

Although hunting is much less common than it used to be — the number of licensed hunters in the state has fallen by about half since its peak in the late 1980s — the pastime is still a big part of life here.

New Hampshire has sold almost 73,000 hunting licenses in the past year, according to the Department of Fish and Game, and a 2024 study by the Sportsmen's Alliance estimated that hunting is responsible for about 2,000 jobs and contributes \$182 million annually to the state's economy. Hunting licenses make up a major portion of the income for

See next page

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Mark Beauchesne of Concord gets out his smooth bore shotgun before hunting. (Elodie Reed/Concord Monitor photo)

from preceding page

Fish and Game.

Hunting has been on the decline throughout the country for many years due to urbanization and competition from other pastimes. The publication Deer Hunting Guide says 7.7% of America's population had a hunting license in 1960 but just 4.6% had one in 2020.

The decline seems to have ended in New Hampshire with license sales stabilizing around 71,000 annually, and may even be rebounding slightly: The most recent data on sales is about 1,000 higher than in the previous two years.

The overall decline nationally has been partly offset by growth in archery hunting and hunting with muzzle-loading firearms. Those seasons generally start earlier and run longer than seasons for traditional rifles and shotguns. For example, firearm season for white-tail deer, by far the most popular hunting season in the Northeast, doesn't start until Nov. 12, which is two-and-a-half months after archery season starts.

The start of hunting often raises concern among other outdoor enthusiasts about safety, but no bystander has been killed by a hunter in the state in recent memory and injuries are extremely rare. Nonetheless, it makes sense to wear blaze-orange or other highly visible garments when going into the woods.

Most years see one or two hunting-related injuries in New Hampshire, but they typically involve the hunters themselves or other members of the hunting party.

All New Hampshire's various hunting seasons can be seen on the Department of Fish and Game's website at wildlife.nh.gov/hunting-nh/dates-and-seasons.

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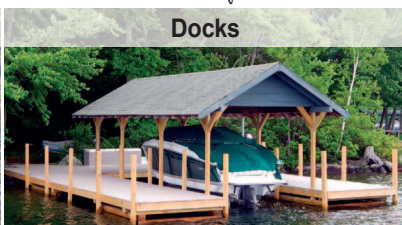
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LAKES REGION BOATING



The Galleries at 30 Main Co-Owner Paul Moreau (left) and Gallery Founder and Co-Owner Vynnie Hale will host an artist reception on Thursday, Sept. 4. (Courtesy photo)

NHBM to feature The Galleries at 30 Main's 'Whatever Floats Your Boat' art exhibition

MOULTONBOROUGH — New Hampshire Boat Museum will host an artist reception featuring an exhibition by The Galleries at 30 Main in Meredith on Thursday, Sept. 4, from 5:30 p.m. to 7:30 p.m.,

Featuring a dozen artists from The Galleries at 30 Main, the exhibition, "Whatever Floats Your Boat," includes oil, acrylic, watercolor, and mixed media paintings ranging from lake scenes to classic boats. The event is free and open to the public, with light refreshments served and the opportunity to meet the artists and explore NHBM's exhibits.

The beauty of the Lakes Region serves as a source of inspiration behind the exhibition. "Nature has created a heck of a thing in New Hampshire," said artist and Gallery Co-Owner Paul Moreau. "I find inspiration all around me on a regular basis and feel very fortunate to call such a beautiful area home."

Gallery Founder and Co-Owner Vynnie Hale said NHBM itself also inspired this show.

"The first time I walked into the boat museum, I immediately thought there were so many possibilities for paintings — the rich colors of the wooden antique boats and the shine of the chrome," he said. "I was thrilled when we were given the opportunity to have a show in this amazing facility."

"NHBM has done an amazing job with its exhibits," said Moreau. "It was an honor to be invited to display alongside so many interesting historical pieces."

Founded initially as VynnArt by Hale in 2010, The Galleries at 30 Main expanded in 2020 when Moreau joined as a full-time partner. Their collaboration built on shared goals and complementary skills, allowing the Gallery to grow while continuing its mission to showcase outstanding local artists.

In addition to exhibitions and sales, the Gallery offers workshops and actively supports art education. 20% of all artwork purchased during the show will be donated to NHBM.

"We appreciate the intent behind The Galleries at 30 Main and their willingness to support our mission, which makes this collaboration so special," said NHBM Executive Director Devon Kurtz. "We invite the community to this reception to show their support of the Gallery and local artists, too."

For more information, visit nhbm.org.

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