



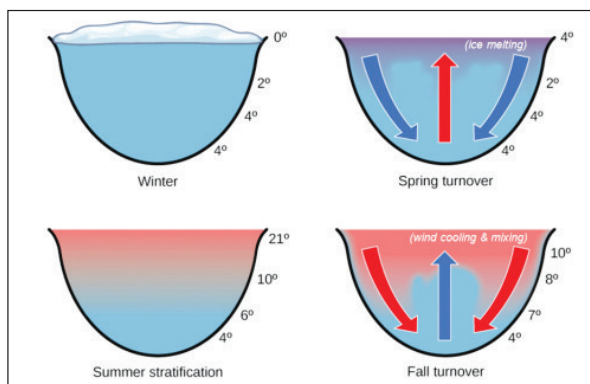
Dive in and understand how the approach of fall changes the lake

Have you ever jumped off a dock and felt an unexpected chill as the water quickly got colder the deeper you went, only to feel warmer again when you resurfaced? That's an example of thermal stratification — a process where a lake divides into layers based on water temperature. As water warms up, it becomes less dense, creating these distinct layers that shift with the seasons. With fall approaching, we're nearing what's known as lake turnover.



By **BREE ROSSITER**
Lake Winnepesaukee Association

Lake turnover is a crucial event for the health of the lake's ecosystem. It helps replenish 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)

oxygen levels at the bottom, which is vital for aquatic organisms. Let's take a look at how Lake Winnepesaukee's water layers change over the

course of the year.

In the summer, the lake separates into three layers. The top layer, which is the warmest, is called the epilimnion. It holds the most dissolved oxygen because it is in direct contact with the air and absorbs sunlight. Although oxygen doesn't control how these layers form, it's still essential for the lake's life forms.

The coldest and deepest layer is known as the hypolimnion, where the water stays around 4 degrees celsius, or 39 degrees fahrenheit, most of the year and doesn't receive much sunlight or oxygen. The middle layer is called the metalimnion, where temperatures gradually rise as the water mixes between the warm surface and the cold bottom. The sharpest changes in temperature and density within the layers is known as the thermocline.

As the summer progresses, wind and wave action push the warm water deeper, causing the

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LAKES REGION BOATING

NHBM's Alton Bay boat show draws hundreds of attendees

ALTON BAY — In mid-August, the annual Alton Bay Boat Show, organized by New Hampshire Boat Museum, drew 18 boats and approximately 300 guests who voted for first, second, and third place winners.

"We had a great turnout this year," NHBM Executive Director Martha Cummings said. "The boats were unique and everyone who attended seemed to have a great time."

At the event, part of Alton's Old Home Day, attendees were invited to walk up to moored boats, talk to owners, and vote for their favorites. In first place was Gypsy, owned by Russel Lunt. Paul St. Hilaire's boat, Mutual Fun, won second place, while third place was a tie between All Aboard, owned by Charley Train, and Shillelagh, owned by Don Minor Jr.

According to Cummings, the popularity of the annual event underscores the relevance of NHBM's broader mission.

"We celebrate boating, the outdoors, lake life, and both historic and modern boating culture, which is



Attendees mill about at the Alton Bay Boat Show in August. (Courtesy photo)

increasingly diverse," she said. "We believe boating and getting to experience our beautiful lakes is for everyone."

To learn more about NHBM, visit nhbm.org.

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top layer to grow larger — sometimes extending up to 27 feet deep. Eventually, the temperature difference between the surface and the bottom becomes too great for mixing to continue.

When the weather cools in the fall, the surface water temperature drops and begins to sink, causing the layers to mix. As the top layer cools down, it pushes the warmer bottom layer of water upwards, causing what's known as turnover. During this time, the temperatures and densities of the different layers even out, allowing wind and waves to mix the water more easily. Eventually, the lake becomes isothermal, meaning the temperature is consistent from top to bottom, allowing for full mixing of the water column.

This turnover process 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. When the lake is isothermal, wind can easily circulate oxygen-rich water from the surface down to the bottom,

which is important for fish and other organisms, especially when the lake freezes over in winter and fresh oxygen is cut off. The oxygen that is mixed into the water before winter must last until the ice thaws in the spring.

Understanding the importance of lake turnover is just the beginning. By supporting local organizations, reducing pollution, and being mindful of our impact on the environment, we can help to protect our lakes and ensure their continued health for generations to come.

...

Bree Rossiter is the conservation program manager for the Lake Winnepesaukee Association. 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 Association 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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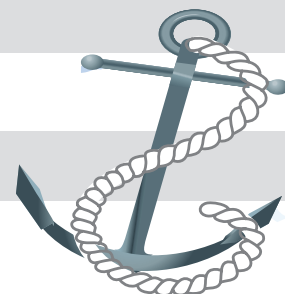
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LAKES REGION BOATING

NHBM member Nick DaBica believes ‘future looks bright’

MOULTONBOROUGH — Nick DaBica has been involved with New Hampshire Boat Museum for almost 30 years. As a current member and part of the Collections Committee, he believes “the future looks bright” for the museum. Most recently, he has played a role in NHBM’s move to its new campus in Moultonborough.

“It’s a dream come true so to speak,” DaBica said of NHBM’s new 24,000-square-foot building and “spacious” outdoor area. “I have nothing but praise for the museum. I’ve watched it grow.”

DaBica has volunteered countless hours at NHBM — and at 80 years old, he still comes in once a week to offer assistance. He has also loaned NHBM two historic canoes, a Native American-made birchbark canoe and an 1895 Rushton sailing canoe, which are currently on display.

“Nick has been an extraordinary asset to our museum,” said NHBM Executive Director Martha Cummings. “He is extremely passionate, and we are so grateful for his continued commitment to creating a thoughtful and well-curated collection.”

DaBica has been interested in boats since his childhood, as he grew up in Connecticut and “enjoyed watching boats” pass by from the bank of the Connecticut River. His love of boats is what later drew him to New Hampshire’s Lakes Region.

His late wife Linda, an early director of NHBM, and DaBica also spent time as members of the board of directors. In looking to the future, DaBica said his current focus for the Collections Committee is to define “where their collection is going and what they need to acquire to get there.”

“These boats are works of art,” he said. “The Boat Museum is basically preserving a whole era of crafts-



New Hampshire Boat Museum member Nick DaBica, left, sits with canoe expert Benson Gray. (Courtesy photo)

manship that will never be produced again.”
To learn more about NHBM, visit nhbm.org.

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