



LILLY CENTER FOR
**LAKES
& STREAMS**

GRACE
COLLEGE

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The many layers of the Barbee Lakes: Lake stratification in action

By Dr. Nate Bosch, Director of the Lilly Center for Lakes & Streams

Summer is finally here! Driving along the shores of the Barbee lakes, you can spot fishers in their boats, eager to catch largemouth bass or northern pike, or see families out of leisurely cruise with their neighbors.

Just as we require oxygen to live, *dissolved* oxygen is essential for underwater life, including fish. During winter, fresh oxygen is sealed out by the ice. Oxygen left in the water is rationed so fish can survive. But when warmer weather finally comes and the ice melts away, spring turnover mixes the water with fresh oxygen from the surface and nutrients from the bottom.

The Barbee lakes will each form three layers at some point during the warmth months of the year, but the top and bottom layers matter most in spring turnover. Although the epilimnion (the top-most layer) is coldest in winter, it warms up most quickly in the spring. The hypolimnion is the layer of water closest to the bottom of the lake and is warmest in winter and coldest in summer. Fish follow the warmth. They live in the deepest parts of the lake during winter but swim upwards during springtime.

Due to the longer hours of sunshine and warmer air temperatures, the epilimnion gets warmer than the hypolimnion. Meanwhile, wind mixes fresh oxygen into the water. Nutrients are also mixed into the water from the bottom and inflowing streams, allowing underwater plants to grow. Fish return to the lakes' upper layers... and fishers return to their boats!

Turnover happens for several weeks, beginning when ice melts from the lake surface and lasting until three layers form – typically in late April or early May (it is very likely that turnover has just finished up for this season!) When you jump deep into your lake and feel cold water around your toes, remember that the fish and the fishers are also paying attention and appreciating the layers.

The Lilly Center partners with many homeowners around Kosciusko County lakes (including the Barbee Chain) to make the waterways in Kosciusko County clean, healthy, safe and beautiful. Want to join us? Visit lakes.grace.edu or email lakes@grace.edu to learn more.