

**How Does Lake Ice Melt?**
To understand how a lake thaws, it's helpful to know how it freezes. As water cools, it gets more dense, said David Wright, supervisor in the DNR's division of ecological resources. (That's why colder water is at the bottom of a lake in the summer.) But when it cools to 39 degrees "it gets as dense as it's going to get,'' he said.

As it gets colder still, water actually becomes less dense. So the coldest water remains on the surface of a lake and eventually starts to freeze. "And ice is even less dense, so it floats on top,'' Wright said. Just as ice cubes float in a glass of water.

"That's one of the unique things about water,'' Wright said. "Otherwise lakes would freeze from the bottom up, and they would freeze solid.''
Which would be bad news for fish -- and anglers.

Lakes tend to freeze first along shorelines, where water is shallow and calm.

**Ice melts from bottom**
The reverse happens each spring. Sunlight penetrates the ice, warming the water beneath like a greenhouse. The shallow shorelines melt first, because those waters warm first. But the ice melts mostly from beneath the ice, not above, as people imagine.

"The water beneath the ice warms and pushes up against the bottom of the ice, eroding it,'' Wright said.

Ice also melts from the surface, and rain can help the process.

"The ice loses its structural integrity as it warms,'' Wright said. "It's weakened by the heat it's absorbing.''

The lake ice transforms into long vertical crystals called candles. That's when the ice starts to look black, because it doesn't reflect much sunlight.

The ice still might be 18 inches thick, but it won't support weight. It's soft and flexible -- ''rotten'' some say.

"That's why when people see the ice go out, it's not a thin layer that goes out,'' Wright said.

Wind breaks up the deteriorating ice, and wind speeds up the melting process. The lake turns into a big slurpy, with the ice crystals tinkling in the waves.
Then it's just a matter of time before the ice disappears -- until next time.
*Source: Star Tribune May 7, 2008*