

How Reservoir Ice Melts

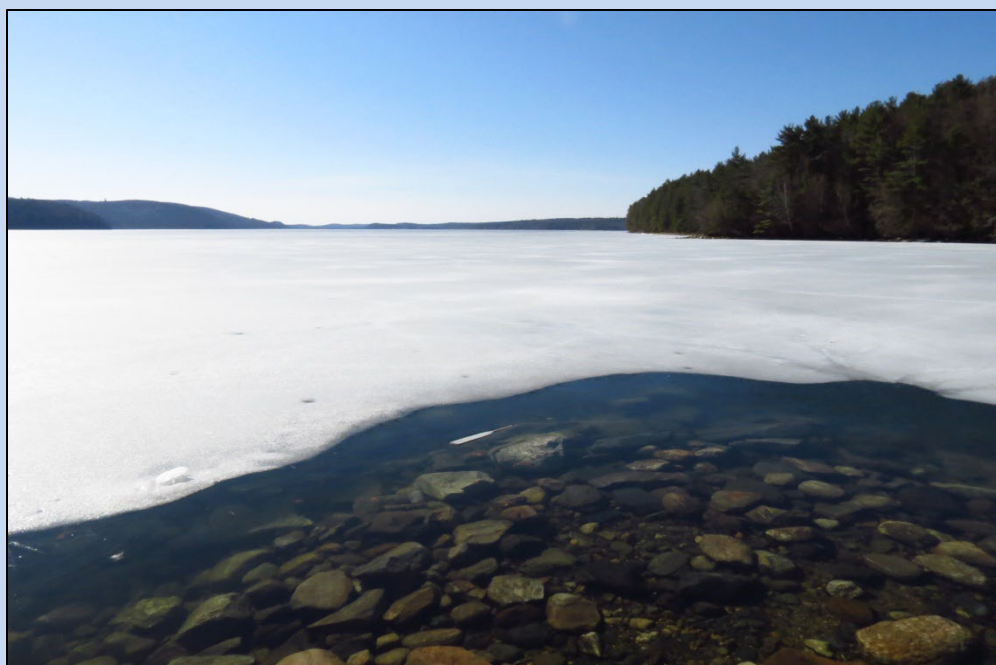
As reservoir ice begins to melt, the ice turns black in some spots and begins to look slushy and opaque. As snow melts off the top of the ice, the ice is exposed to the sun. The ice then acts like a greenhouse to the reservoir water, and as the sun shines on the ice, it heats the water underneath the ice. The ice then starts to melt from the bottom, where it is touching the water. When ice thickness erodes to between 4 and 12 inches, it transforms into long vertical crystals called “candles.” These candles conduct light very well, which causes the ice to begin looking black because it is not reflecting much sunlight.



Aerial view from the Goodnough Dike as the water is just beginning to freeze in the southern end of the reservoir. Photo was taken January 24, 2014.



Aerial view looking over the southern end of the Prescott peninsula. The reservoir is almost completely frozen over at this point, with just a few areas free of ice. Photo was taken on February 4, 2014.



View from the Gate 8 Boat Launch Area. Where the ice is beginning to melt away from the shore, but as you get farther out, the ice is still very solid and lightly colored. Photo was taken on April 3, 2014.

As the sun continues to heat the ice, the water below the ice continues to warm. Meltwater fills in between the crystals, which begin breaking apart. As a result, the surface appears grayish as the ice reflects a bit more light than before.

Next, all that is needed is a windy day to break the surface ice apart. The ice candles will often be blown to one side of the reservoir, making a tinkling sound as they knock against one another, and pile up on the shore. It's amazing how this final process seems to take just a few hours, where one day the reservoir is ice-covered and the next it is not.



Aerial view above Mt. Zion, roughly halfway up the reservoir where most of the surface water has been converted to ice. Photo was taken January 24, 2014.



View from the hangar below the administration building looking north with the Quabbin rental boats in the foreground. The entire reservoir is frozen over at this point. Photo was taken March 20, 2014.



View from the second floor of the administration building looking north as the ice begins to melt and recede from the shoreline. Notice the dark, almost black color of the ice. Photo was taken April 9, 2014.

Over the next few weeks, the speed of the ice-out process will depend on the amount of sun and wind. Only time and the weather will tell how much later than average Quabbin Reservoir ice will disappear each year.