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A Science Service Feature

? WHY THE WEATHER ?

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LAKE BATHING

If you swim in lake waters in summer probably you have noticed how much warmer the water is at the surface than along the bottom. In our latitudes in summer the temperature of the surface water of lakes is usually between 60 and 80 degrees Fahrenheit. If the lake is small and shallow, the whole body of water may become quite warm. In the case of a large deep lake the water at the bottom will stay at 39 degrees Fahrenheit, the temperature of maximum density, throughout the year. This cold water being heaviest stays at the bottom. The surface heating does not penetrate far, and the wind is not sufficient to stir up the deeper layers.

A shelving sandy beach gives the warmest water for bathing. But on lake beaches there is little or no tide and so we do not get the warm water sometimes experienced at the seashore when the tide turns and starts coming up over very hot sand. With large lakes, as with the ocean, the water along the beach will tend to be warmer when the wind is on shore than when it is off shore. An onshore wind brings warm surface water up on the beach, an off shore wind blows away the warm top layer, which is replaced by cooler water welling up from below. The reverse is true of air temperature, the sea or onshore breeze is cool, the land or off shore breeze is hot. In the case of a lake with wooded shores and narrow beaches, west shore beaches will be sunnier and warmer in the morning and east shore beaches warmer in the afternoon. With most lakes in the eastern United States east and north side beaches will get more onshore wind than west and south beaches, because the prevailing winds are southwesterly. Onshore wind is a great advantage, it means cool air and warm water.

(Tomorrow: Ice Sales and Temperatures)

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