The Effects of Crystallization on the Salinity Stratification and Impurity Levels Occurring in Rural Agricultural Water Sources

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This year the purpose of the experiment was to determine if there is indeed a Halocline occurring in the water just below the ice formed on a body of water and, if so, the structure of such Halocline. A small private pond near Shepherd, Montana was chosen as the experimental site. Samples of the pond water were taken prior to freezing, to serve as a baseline for comparison to future samples. Once a safe working layer of ice was formed on the pond, several holes were drilled through the ice. Along with the ice, samples of the water from various depths below the ice were taken for testing. Using a homemade conductivity tester, all samples were analyzed for electrical conductivity. Over the span of roughly four weeks, this process was repeated three times in the same holes drilled during the first visit. Data revealed that as compared to the pond water prior to freezing, there was an 82% decrease in impurities in the water just below the ice and a 92% decrease in the ice itself. But what was also revealed, and more interesting so, was the faint structure of a Halocline!

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