

The Importance of Water And Its Value In The Central New York Landscape

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When people think about living in the Finger Lakes region and Central New York many scenic and distinctive images typically come to mind; small lakeside communities, summer days spent boating and swimming, the vineyards of popular New York State wineries, local fishermen along the water's edge or out on the ice over a fishing hole. Consider your own favorite characteristics of life in this region of the state – and then try to picture how different things would be without water.

Every day our daily lives depend on water in hundreds of ways, but unfortunately it is usually taken for granted just as often. Essential to the basic processes that occur at the cellular level, water enables life. Water is the ingredient that differentiates Earth from other planets, and it's presence and abundance (or lack of) has a prominent impact people everywhere. Only 3% of the water found on the planet is freshwater, of which we rely on the one-third that is available in rivers, lakes and aquifers. The other two-thirds of freshwater consists of glaciers and is primarily unavailable to us. The presence of water is such a staple resource that it has also become a precious commodity that is available at individual residences for immediate use with the turn of a faucet, transported to irrigation systems for agricultural production, and used to fuel hydropower facilities, as a navigational medium to transport goods, and to transform thirsty desert lands into green lawns and golf oases. The abundance of water is also a powerful factor and while extreme amounts of water such as floods and droughts can even be detrimental, the management of clean and potable water is an ongoing job. In addition to serving as a resource, water also has aesthetic qualities and shapes the recreational opportunities available to us. Without flowing waterfalls, the sparkle of sunlit lakes, the sound of a babbling brook, or snow-covered trees, the landscape would undoubtedly hold less beauty. While lakes and rivers are key to numerous recreational activities from swimming to kayaking, water is also a luxury at many man-made attractions. There are waterslide parks, aquariums, malls with indoor fountains, spas and resorts with steam rooms and hot tubs, fitness centers with water aerobics, and a pool at almost every motel.

The reason water is so special to the world we live in is due to a number of its unique properties. A single water molecule is made up of two hydrogen atoms and one oxygen atom. These three atoms bond together to make what is known as a polar molecule, resulting in one end of the molecule having a positive charge and the other a negative charge. Since opposite charges attract water molecules are very “sticky” and link together. This cohesive property of water results in surface tension. If you were to spill a glass of water on a table the water “puddles” and does not spread out flat. Raindrops form in the same way, and if it were not for the Earth's gravity they would be perfectly round rather than teardrop shaped. Surface tension enables insects like water striders to glide along the surface of a pond without falling in. The fact that water molecules stick together also results in capillary action. If you touch the tip of a paper towel into a glass of water the towel acts like a wick as the water travels up. Plants are able to transport water from their roots upward to the rest of the plant, against gravity, thanks to capillary action. If water molecules did not stick together and “pull each other along” tall trees would have no way to absorb water from the ground.

Water is the only natural substance found in all three states (solid, liquid, gas) at Earth's normal temperatures. Unlike most substances, the solid phase of water is less

dense than its liquid phase. This enables ice to float! Imagine putting ice cubes in your glass of water and having it overflow when they melted. More importantly, if ice did sink, lakes would freeze from the bottom up and aquatic ecosystems would not be as we know them today! Water also has a high specific heat, meaning that liquid water can absorb a very large amount of heat before it is transformed to a gas. We benefit from this characteristic because sweating keeps us cool on a hot day as the water we emit evaporates using heat. We take advantage of this same process with the coolant we put in our cars. Bodies of water also moderate seasonal temperatures of nearby lands. The larger lakes in our area, therefore, provide a suitable growing season to the adjacent vineyards, whereas in other parts of central New York the cold weather is too extreme for an adequate grape season.

All of the ways in which we depend on water, both directly and indirectly, whether it is for our own body's biochemistry, recreational enjoyment, the survival of the natural world we live in, or to brush our teeth – all have one theme in common – the amount of water on Earth is finite and consists of only a small percentage of freshwater that all living organisms share through the water cycle. Take notice of the many ways in which you rely on water everyday and appreciate both the aesthetics and utility of water in Central New York! There are many simple actions you can take at home to participate in protecting water quality in your watershed. Learn about how you can use landscape with native plants to improve water quality, create a rain garden to manage runoff, stabilize banks and control erosion, replace household cleaning and gardening chemicals with water-friendly substitutes, maintain working septic systems to protect drinking water, and assess your home's water quality risk. Call the Cornell Cooperative Extension Office of Onondaga County (424-9485) with any questions or to request information.