Environmental News May 2021: Water

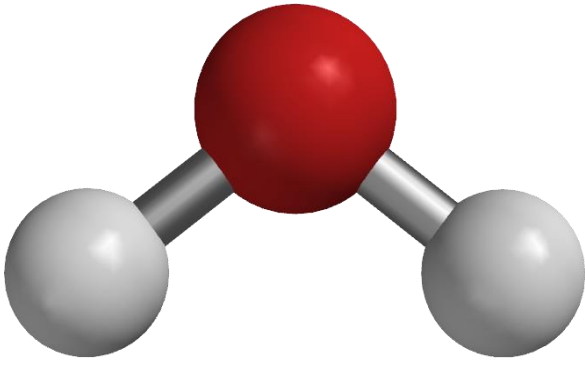
Native grasses and sedges stabilize streambanks

We planted sedges along the stream bank near Willow Bend School to protect it from erosion and enable native wetland plants to establish and are optimistic that our efforts will succeed and support. Native plants such as the sedges planted near the edge mitigate erosion more effectively than reed canary grass because deeper fibrous roots hold soil in place and help water saturate the soil. Sedges also prevent invasive species that erode soil from recolonizing.

The native grasses established at Emily's Prairie already mitigate erosion, protect against invasive species, and filter rain water flowing into Salt Creek. And they also supply seeds that enable the City to invest in and expand the benefits prairies provide. We also expect the sedges the grass seed sown this spring and harvests from Emily's Prairie to keep Salt Creek clean as the City replaces invasive plants in the near future.

Rain Barrels reduce Demand

Rain barrels reduce demand for water from Lake Michigan, and help you financially on your water bill by storing rain water for use as needed or convenient. Rain water from barrels is not clean enough to drink, though you can water gardens, or clean with it. The City sells rain barrels for anyone interested in collecting rain.



Rain Gardens reduce Flooding

Home owners can protect their own and their neighbors' investments from flooding by planting rain gardens which alleviate flooding and sustain wild life. Rain gardens filter rain water, allow it to penetrate into the soil instead of running off into our streets and sewers, and demand less water than traditional gardens. They can also attract wildlife. I will explain how rain gardens work to help cities handle floods

Rain gardens alleviate flooding by taking advantage of water's downward flow and include native plants which deeply penetrate the earth and adapt to our climate. Impermeable surfaces which are extremely common in cities affect their susceptibility to flood. Lawns though not impermeable are also susceptible to flooding at lower levels because they are shallow rooted. Urban rain gardens would reduce runoff that washes over impermeable surfaces and into storm drains and prevent homes from flooding.

The City takes advantage of rain gardens' abilities to mitigate both erosion and flooding by strategically siting them in parks, near bridges, public facilities, and along Salt Creek.

Clean Water benefits Everyone

It is well known that water is essential for all life and clean drinkable water refreshes everyone. I intend to explain how water chemically supports life, moderates Earth's climate, and cleans surfaces. I also explain that sanitation itself is essential for human health and sources for contamination, and how the city maintains clean water for all its residents.

Water is a small extremely polar molecule whose composition and hydrogen bonding sustains life at many levels. I already explained the lower density of ice as a product its hydrogen bonds which prevents lakes from completely freezing during winter. It consists of three atoms, yet its hydrogen bonds cause its surface tension, maintain its temperature, and suspend components of cells, qualities of water which all sustain life. Water resists changing its temperature and circulates in the Ocean where it moderates climates to support life and is also an important greenhouse gas in our atmosphere. It sustains life as the main substance filling every living cell, and as both a product and reagent in metabolism. Most chemical reactions in living organisms either generate or consume water.

The City ensures that we enjoy clean drinking water and healthy natural areas when it stabilizes Salt Creek and carefully measures our drinking water for impurities with stricter than federal and state standards. It also updates its standards making them increasingly strict to stand out as a leader in sanitation. Stream bank stabilization and rain gardens clean our supply of water by preventing sediment, nutrients and pathogens from contaminating it.

What everyone should know about Stream Bank Stabilization

Stream bank stabilization of Salt Creek is a continuing effort to remove invasive buckthorn that is eroding sections of Salt Creek, reduce the slope or grade of its banks, and replace and manage with native plants. Stabilization of Salt Creek improves the health of its water and inhabitants by mitigating erosion and filtering contaminants as water flows into the stream. It also protects investments from eroding when the creek floods.

The City recognizes that erosion both threatens our assets and by definition pollutes Salt Creek, so it informs homeowners' associations about its environmental and financial impacts, remediates sections of the Creek, and maintains native plants that protect banks from erosion. Invasive brush is the main factor accelerating erosion along Salt Creek because it densely shades and prevents native plants which stabilize banks from growing, so the City removes buckthorn and honeysuckle bushes from stream banks, maintains these banks to prevent new bushes from establishing and plants native grasses, forbs and sedges. It also constructs rain gardens as additional support.

It is also expensive but saves money in the long term if planned and maintained well, so it is important for the City to maintain segments of Salt Creek already stabilized and avoid wasting its money. A streambank stabilized and regularly maintained saves homeowners from paying for damage to facilities during floods. The sedges or cord grass planted to stabilize banks both alleviate flooding and filter water as it flows into Salt Creek.