Wetland investigation and planning

Mayor Cheryl K. Farivar, and the Leavenworth City Council would like to announce that the City has begun the development of a Regional Stormwater Wetlands Master Plan.

The goal of the project is to characterize the existing landscape, including wetlands, and stormwater management issues, identify potential stormwater / watershed corridors and provide the basis for a detailed Master Plan that will contain engineering, environmental analyses, design for the development of a Green Infrastructure Plan for the City. The study area focuses on both the land currently within the City and the City's Urban Growth Area. Mayor Farivar acknowledged that the number one goal in developing the proposal for the project and subsequent funding was getting the support of the community. The project was developed out of a community wide Wetland Symposium sponsored by the City Council and Chelan County in June of 2013.

The project got underway in early April 2015, and Grette Associates is performing investigations and has been asking folks for access onto properties for wetland analysis. Documenting wetlands through this program can save a private owner the cost of an investigation which can range from $4,000 to $7,000.

Wetlands perform a dazzling array of ecological functions that were barely recognized a few short years ago. Even now our understanding of the complexities of wetland ecosystems is still developing, and it seems the more we learn, the more valuable wetlands become. Wetland ecologists have already documented the following environmental benefits of wetlands: water purification, flood protection, shoreline stabilization, groundwater recharge, and streamflow maintenance. Wetlands also provide habitat for fish and wildlife species, including endangered species. Not all wetlands provide all of these benefits, and how a particular wetland works depends on its location and its type.

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Information may be accessed from the City of Leavenworth webpage
www.cityofleavenworth.com.

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Regional Stormwater Wetlands Master Plan

Wetland Investigation Information

Wetlands—a valuable resource for our community

Wetland benefits

Water Purification

Wetlands protect water quality by trapping sediments and retaining excess nutrients and other pollutants such as heavy metals. These functions are especially important when a wetland is connected to groundwater or surface water sources (such as the Wenatchee River) that are in turn used by humans for drinking, swimming, fishing, or other activities. These same functions are also critical to the fish and other wildlife that inhabit these waters.

Sediments, nutrients, and toxic chemicals enter wetlands primarily by way of "runoff," a term used to describe the rain and stormwater that travels over land surfaces on its way to receiving waters. Runoff may carry pesticides and fertilizers if these have been applied to the land. Sediments, which are particles of soil, settle into the gravel of streambeds and disrupt or prevent fish from spawning, and can smother fish eggs. Other pollutants -- notably heavy metals -- are often attached to sediments and present the potential for further water contamination. Wetlands remove these pollutants by trapping the sediments and holding them. The slow velocity of water in wetlands allows the sediments to settle to the bottom where wetland plants hold the accumulated sediments in place. Runoff waters often carry nutrients that can cause water quality problems.

An example of such an occurrence is an "algae bloom." Besides the aesthetic problems associated with algae blooms (a green, smelly slime) they result in low levels of oxygen in the water. This oxygen depletion can result in the death of fish and other aquatic life. Some algae release toxins that can kill pets and livestock when bloom conditions occur. Wetlands protect surface waters from the problems of nutrient overload by removing the excess nutrients, some of which are taken up and used by wetland plants, and some of which are converted to less harmful chemical forms in the soil.

Toxic chemicals reach surface waters in the same way as nutrients, and can cause disease, death, or other problems upon exposure to plants and animals (including humans). In a function similar to nutrient removal, wetlands trap and bury these chemicals or may even convert some of them to less harmful forms. Scientists are continuing to study what happens to toxic chemicals when they enter wetlands, and they warn us that even if the toxins are buried, they are still potentially dangerous. Disruptions of the wetland soils could release the toxins back into the aquatic environment.

Fish and Wildlife Habitat

Many species of birds, fish, mammals, reptiles, and amphibians rely on wetland habitat for breeding, foraging, and cover. The special wetland conditions provide unique habitat for species that cannot survive elsewhere. Migratory birds depend on wetlands, and many endangered and threatened animal species require wetlands during part of their life cycle. The incredibly high rate of wetlands loss has contributed to their demise.

Wetland plants and small animals -- especially insects -- are essential links at the lowest levels of the food chain. A wetlands environment supports these plants and animals, which in turn support the larger animals that feed on them. While an otter or a trout may be a more attractive species to protect than some unknown insect or plant, the latter are no less important in the overall scheme. If we diminish the lowest levels of the food chain, the higher levels will suffer as a result.

Flood Protection

Almost any wetland can provide some measure of flood protection by holding the excess runoff after a storm, and then releasing it slowly. The size, shape, location, and soil type of a wetland determine its capacity to reduce local and downstream flooding. While wetlands cannot prevent flooding, they do lower flood peaks by temporarily holding water and slowing the water's velocity. Wetland soil acts as a sponge, holding much more water than other soil types. Even isolated wetlands can reduce local flooding. If the wetlands were not there to hold stormwater runoff, backyards and basements might end up under water.

Shoreline Stabilization

Wetlands that occur along the shoreline of the banks of rivers and streams help protect the shoreline soils from the erosive forces of waves and currents. The wetland plants act as a buffer zone by dissipating the water's energy and providing stability by binding the soils with their extensive root systems.

Groundwater Recharge and Streamflow Maintenance

Aquifers and groundwater are "recharged," meaning they are, replenished with water by precipitation that seeps into the ground and by surface waters. Those wetlands that are connected to groundwater systems or aquifers are important areas for groundwater exchange. They retain water and provide time for infiltration to occur. Groundwater, in turn, provides water for drinking, irrigation, and maintenance of streamflow and lake and reservoir levels. During periods of low streamflow (or low lake water levels), the slow discharge of groundwater often helps maintain minimum water levels. In addition, wetlands located along streams, lakes, and reservoirs may release stored water directly into these systems, also contributing to their maintenance. Wetlands' many intricate connections with groundwater, streamflow, and lake and reservoir water levels make them essential in the proper functioning of the hydrologic cycle.

Economic Benefits

The economic benefits associated with these environmental values of wetlands can be substantial. If, for example, a community had to build flood control or water treatment systems to replace those functions provided by wetlands, the costs could far outweigh the land purchase price of preserving the natural wetland systems. Open space can increase home values. There are as yet no precise formulas that we can use to determine the accurate dollar value per acre of wetland, but the more we learn about wetlands, the higher that value becomes.

Other Benefits

Some of the values associated with your wetland will be yours and yours alone. No one else can really say what the open space means to you and your family. How your wetland affects your quality of life, and how you value it for its aesthetic contributions are personal matters. You or members of your family may also get personal recreation benefits from your wetland -- nature photography or birding or simply quiet time in a peaceful place.