Caring For Our Watersheds

Lacombe Composite High School is situated on the edge of the Battle River Watershed in a diverse agricultural and oil community which relies on potable water. The EcoVision students of LCHS believe that the LEAFS project, Lacombe Educational Aquaponics Food System, will encourage the school & community to grow their own food in a way that reduces the amount of water, nutrients, and chemicals needed and therefore reducing the impact on our watershed. The LEAFS project is important because it improves the ecological footprint of the local watershed, enhances the school’s educational opportunities and encourages collaboration with the community. EcoVision is passionate about the environment and wants to make a difference. Systemic to the LEAF project is the belief in and generation of a community-wide care for the watershed.

The Battle River Watershed covers approximately 30,300 km2, with 83% situated in East Central Alberta and 17% in Saskatchewan. This Battle River Watershed is home to popular fish, like Walleye, Pike, Burbot, & Goldeye and wildlife like white tail deer and snowshoe hare, which rely on the health of the watershed to survive. The main sources of water is the Battle River which is prairie fed from snow and rain. The Battle River extends over 800 km from Battle Lake to the North Saskatchewan River in Saskatchewan. Included in this area is the town of Lacombe and Wolf Creek School Division. The Battle River Water Alliance (BRWA) is proud to announce the completion of its first State of the Watershed (SOW) Report, which provides a snapshot of the current health of the Battle River Watershed.

Watersheds fulfill three primary functions: they capture, filter/clean, and store water in the soil in order to release it into a water body. The watershed is not only important for survival of wildlife, plants and humans, it can also provide insight to individuals about the environment and potential damage that may occur if solutions are not found to the issues affecting it. On the radio, TV, or at conference like Navigate individuals are informed about the water crises and reminded how important our watersheds are. Due to climate change, projections indicate that the water flow of the Battle River and its tributaries could decline by 20% or more. As agriculture increases the amount of nutrients like phosphates and the concentration of harmful pesticides will increase, putting more pressure on the Battle River Watershed. Because knowledge can be a powerful catalyst for change, it is imperative for everyone to be educated about their watershed in order to make an informed difference.

Traditional gardening wastes large amounts of water and nutrients through runoff. A goal of the LEAFS program is to eliminate up to 70% of water waste, compared to traditional gardening, through filtering, cleaning, and recycling of water. As well, in order to make water use more efficient, the Aquaponics system also uses the recycled water to grow fish. The ammonia waste of the fish is turned to nitrates and used by the plants. This will result in less nutrient waste and wastewater and if the practices are adopted by others will have a profound positive impact on the local watershed.

 The watershed area around Lacombe and Wolfcreek School Division that is impacted by our project covers an area of 2767 km2 in size. Through the LEAFS project, Lacombe Composite High School staff, students and community members will be educated about sustainable, equitable, regenerative agricultural practices that can be utilized at home or on a large scale. As well, EcoVision plans to inform the community about the importance of responsibly taking care of the watershed by managing water usage, recycling nutrients and reducing harmful chemical usage. This will be done through courses, community advisory panels, and shared use of the LEAFS project, greenhouse and outdoor gardens.

The initial one-time capital cost to build the Aquaponics System is $11 475; EcoVision has already invested one quarter of the initial cost and begun building the system. The estimated cost of fish for a fully operational system per year is $1 320, cost of seedlings for vegetables and herbs about $360 and electricity cost of $115. Lastly, the cost of water would be $3.60, which adds up to the total of $1796.00 per year. EcoVision would like to see the Aquaponics system up and fully operational by the end of April, however resources are still lacking. Key materials in addition to the already listed items include a pump, plumbing materials, an oxygenator, a back-up generator, and fish-food supplies.

The LEAFS group was created with the purpose of managing and developing this project, as it is too big for just one person to handle. The group of students from EcoVision has worked and will continue to work as a team to build and manage this Aquaponics system. For the last 22 weeks, this micro-group within EcoVision has been meeting three times a week for 45 minutes to work on this project. That is the equivalent of about 50 hours of work per person to date, on a project that went from concept to a partially functioning system. Therefore, a lot of work, time and effort has been put into it developing this project.

 In summary, EcoVision’s goal is to build an efficient and sustainable Aquaponics system. This system will benefit our watershed by raising awareness about environmental watershed issues, promoting community involvement, and increase our ability to grow our own healthy food. LCHS will be one of the first schools in Canada to have a running Aquaponics program that supplies our cafeteria with fresh fish and vegetables. For more information on how the LEAF Aquaponics system works, please view the attached PowerPoint and visit our website at www.lchsecovision.weebly.com.

 Bibliography:

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**Navig8 conference**, 2014, Banff Centre, Banff, Alberta