Progress Report: Surface Water – Groundwater Interaction in the Middle Vernon Creek Watershed

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The Oceola Fish and Game Club (OFGC), in partnership with the University of British Columbia Okanagan and the District of Lake Country, is studying the interaction between surface water and groundwater in the Middle Vernon Creek watershed. The 1970s Okanagan Basin Study showed that groundwater and surface water are very closely connected in this area, and that to effectively manage one requires management of the other.

A major component of this project is to study the interaction between surface water and groundwater in the Winfield Flats area (between Wood Lake and Ellison Lake). This research is being carried out by Natasha Neumann, PhD Candidate, University of British Columbia Okanagan. A network of eight surface water monitoring stations and eight shallow groundwater monitoring stations have been installed. The collected information will provide some in-site into groundwater gains and losses on the Middle Vernon Creek fan and along Winfield Creek. A geochemistry study is also being carried out to enhance the understanding of surface water and groundwater interaction in the area. The water samples will be analyzed later this year.

One of the deliverables for this project is to produce aquatic resource maps. Larger scale maps will break down the southern portion of the Kalamalka-Wood Lake basin into sub-watersheds and show major features such as community watersheds, aquifers and major water intakes. Smaller scale (sub-watershed) maps will be produced to show more detailed information such as the groundwater recharge and discharge zones and the flowpaths that connect surface and subsurface waters – focusing on the Ellison (Duck) Lake, Middle Vernon Creek and Winfield Creek sub-watersheds. These maps are intended not only as management tools, but also for public education, to develop the community's awareness of its watershed and areas of sensitive habitat.

This project is also to develop the terms of reference for a Water Use Plan (WUP) that incorporates both surface and ground water resources. The first step taken has been to start creating a central repository of existing reports and data.

In addition to the surface water and subsurface water interaction, there are proposed reservoir expansions, the selling of reservoir lease lots, multiple jurisdictions, First Nation water rights and other issues that make water management in the Middle Vernon Creek watershed very complex.

This project is on schedule and should be completed by the end of March 2009 – with the completion of a summary report, maps and PowerPoint presentation.

Surface water monitoring stations installed on Winfield Creek (above) and Middle Vernon Creek (below).