

The first field season for the Pokegama & Deer Lake Diagnostic study has wrapped up successfully, preparing the groundwork for the second and last season, next year. It could not have succeeded without the excellent work of Noel Griese and the staff at the Itasca SWCD, Ben Lakish and the students and staff at ICC, Jake Smokowitz and his collaborators at ISU, and, of course, the volunteers and helpers on and around Pokegama and Deer Lakes.

The purpose of this first-of-its-kind study is to figure out how these unimpaired lakes work so that the knowledge can be used to ensure the long-term sustainable use of these and other outstanding Itasca County lakes. As with any scientific study, the first stage of study needed to be adaptive, because one never can be sure of the outcome of the work before you begin. If we had known what would be found, there would have been little need to do the study! We who have tried to guide the work through its early stages are grateful for the forbearance of all who have been involved. We now better understand the functioning of these lakes a little better so the second field-season should unfold much more smoothly. This is a huge undertaking – and I hope it will be a source of community pride when it is complete.

The influence of precipitation and run-off on lakes is well known, possibly because they are visible and obvious. The most unknown aspect of these lakes is the relative role that groundwater plays in their function. In the planning stages of the work, we foresaw two types of groundwater and planned for their analysis. These are shallow, near-shore inputs and outputs (measured with seepage meters) and deep, long-range inputs and outputs, measured using the many private wells around the lakes. One aspect that we will investigate further in the coming year concerns the areas of concentrated, near-shore seepage that many of us call “springs”. We now know, from Jake’s work and the help of Dr. Bill Simpkins (ISU), that shallow seepage around the lakes moves water an average of between 0.02 and 0.3 feet per day (7 to 73 feet per year). This means that, depending on soil structure and the tilt of the water table, water percolating into the soil 300 feet from the lakes may flow away from them or get into them in between 4 and 43 years. Stable isotope studies suggest that this water consists of groundwater in the shallows (rainwater that percolated down into soils) while deep groundwater may be mixtures of groundwater and lake water. During summer 2012, we expect to learn much more about groundwater in this region and also find out how much the “springs” might be contributing to the overall water and nutrient budgets of the lakes. My expectation, based on this year’s data, is that groundwater plays a much larger role than we had expected.

The surface water studies (lake water, tributaries, and outflows) proceeded according to plans. SWCD and other cooperators will take winter samples and we will all be looking forward to an early start next spring. Project cooperators are now busy submitting data to MPCA and will soon be analyzing the mountains of information that will allow us to know the overall water and nutrient budgets of these two important, bell-weather lakes. MPCA is very interested in the first-ever diagnostic study of lakes that have not suffered major water quality degradation. We feel the results of this study will give the whole community a clearer picture of how these valuable lakes work, how lakes in the region are functioning, and how the community can ensure the sustainable use of these outstanding natural resources.

Thanks again to all the cooperators and volunteers who made this season successful.