

Dear Fellow Residents of Itasca County-

I have just read the letter written by Dr. John Downing to the Itasca County Planning Commission/Board of Adjustment and found his message on-target in every respect. I can add little to his clear, and factual statements. Dr. Downing is an internationally recognized aquatic scientist with scores of papers on lake processes in the peer reviewed literature. His insights about Itasca lakes clearly state what is known about lake function and response to shoreline/watershed development.

I teach limnology at the University of Missouri (Columbia) and am a summer resident on Deer Lake, Itasca County. I have been actively involved in Lake Management for 30 years. I publish papers on lake management and am one of the founding members of the North American Lake Management Society (presently serving as a member of the Board of Directors and Associate Editor of the journal). My specialty is the response of lakes to nutrient inputs (and watershed development). In collaboration with John Downing, I will be conducting an inventory of lake water quality in Itasca County in July 2003. Art Norton knows of this forthcoming activity, as does Bruce Wilson in St. Paul.

Two years ago I spoke before the Itasca County Board of Commissioners and described the non-linear relationship between lake water clarity and lake nutrient content. Simply put, clear lakes respond to additional nutrient input with an increase in algal biomass (suspended organic material in the lake water) that results in an exponential decline (faster than one-to-one) in lake transparency. Therefore, small increases in nutrient inputs to lakes result in large losses of water clarity, along with other changes in the biota and oxygen budget of the lake. This rapid change in water clarity in response to small increases in nutrients is the reason clear lakes are considered sensitive to degradation.

The source of nutrients is from human activity in the watershed of lakes. In northern lakes, nutrient input to lakes is directly tied to the number of people in the lake drainage basin/shoreline. The mechanisms of nutrient entry into lakes from human activity in the catchments is from surface runoff and septic inputs to ground water. The relationship between human development and lake water quality is well quantified by the science of limnology – lakes with moderate development will retain their clarity whereas lakes with Planned Unit Developments will be degraded by excess nutrients.

Biologically and economically, clear lakes are much more highly prized than are nutrient enriched lakes. Natural resource economists have repeatedly shown that clear lakes (with low nutrients) are more valuable than nutrient-rich, lakes with moderate to low transparency.

Many Itasca County lakes are clear with low nutrient content because they have low- to-modest human activity in their drainage basins. These clear lakes are the most desired lakes in the county and lakeshore prices reflect this value. These characteristics deserve protection and, if properly protected, will ensure that Itasca County lakes will continue to be the most ecologically desirable and economically valuable lakes within the state.

I can easily cite 100s of examples of how high-quality lakes have been degraded by over-development. The literature also consistently shows that once a lake is degraded it is expensive, and often impossible to reverse the change in lake water quality.

Avoiding lake water quality problems is remarkably simple -- all that is required is to regulate lakeshore and watershed development to moderate levels (and Itasca County has identified such a plan) and avoid high density development.

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