Learning More About Our Lakes

By Megan Birzell

The Clearwater Resource Council's "Adopt-A-Lake" monitoring program has finished up a successful second season and continues to grow, thanks to the community's commitment. The program significantly expanded this year and now has 25 volunteers monitoring water quality on Big Sky Lake, Salmon Lake, Placid Lake, Seeley Lake, Lake Inez, Lake Alva, Rainy Lake, and Clearwater Lake. Monitoring began in May and concluded in October.

The greatest benefit of this program will be seen over time as we are able to identify long-term trends in water clarity. However, some trends are already beginning to emerge. Lakes in the upper reaches of the watershed tend to have greater water clarity than lakes in the lower portions of the valley. This makes sense because lakes further down in the watershed are more impacted by sediment and nutrients than lakes higher up in the system, and this diminishes water clarity.

Average Secchi Depths May – October 2009

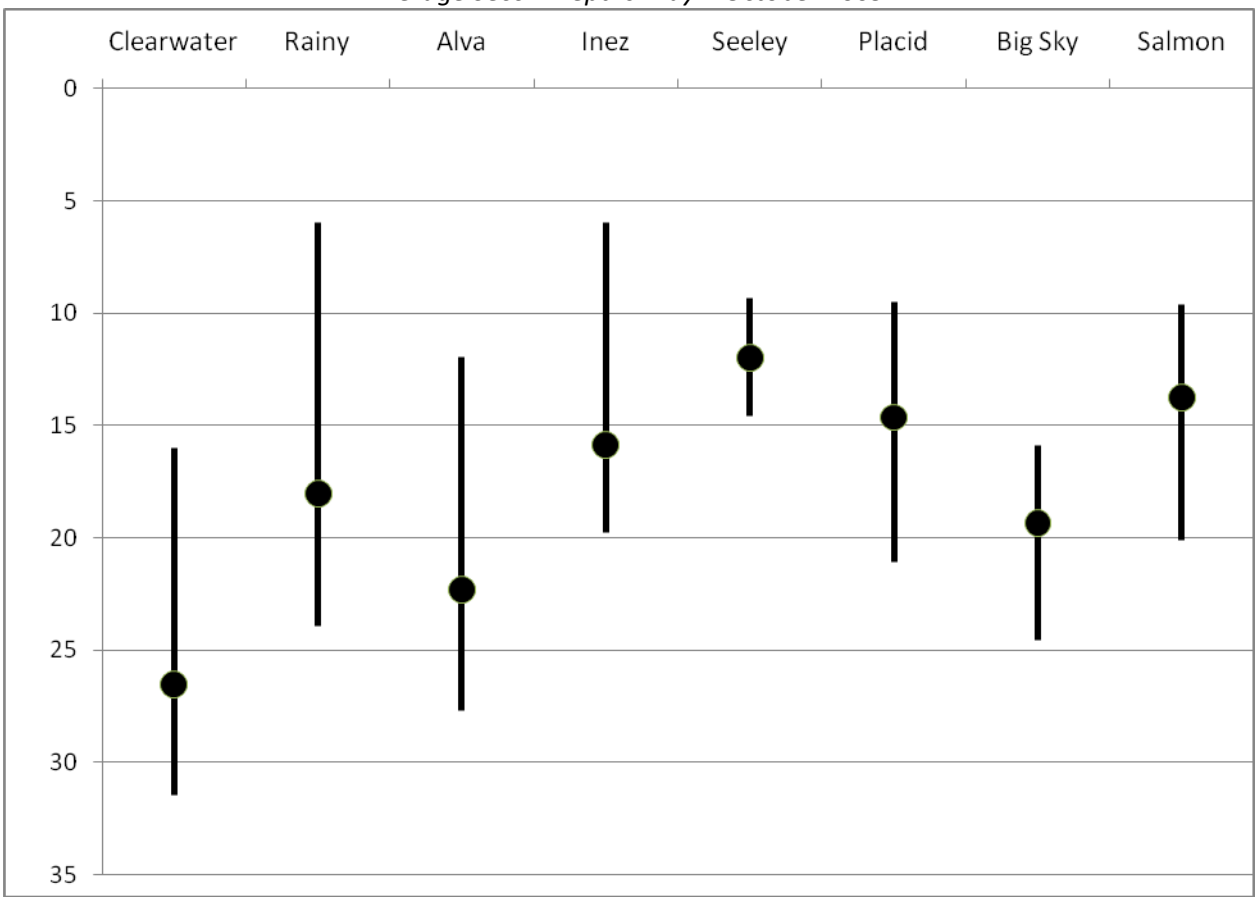

Figure 1. Average Secchi Depths May – October 2009. Lakes with average Secchi depths of 6 feet or less are considered eutrophic. Lakes with average Secchi depths of 6 -16 feet are considered mesotrophic. Lakes with average Secchi depths of more than 16 feet are considered oligotrophic.

Further, as Figure 1 shows, all of these lakes fall into either the oligotrphic or mesotrophic water clarity categories. An oligotrophic lake is a lake with low primary productivity, the result of low nutrient content. These lakes have low algal production, and, consequently, often have very clear

waters, with high drinking-water quality. The bottom waters of such lakes typically have ample oxygen; thus, they often support many fish species. A eutrophic lake, by contrast, has high primary productivity due to excessive nutrients and is subject to algal blooms resulting in poor water quality. The bottom waters of such lakes are commonly deficient in oxygen, and for this reason they commonly lack fish species, like trout, which require cold, well-oxygenated waters. Mesotrophic lakes fall in the middle with an intermediate level of productivity – greater than oligotrophic lakes, but less than eutrophic lakes. These lakes are commonly clear water lakes and ponds with beds of submerged aquatic plants and medium levels of nutrients.

When lakes are formed, they are oligotrophic. Over their lifespan, they become mesotropic and then eutrophic before filling in completely with sediment and ceasing to exist. This process is natural, but it can be sped up by human influence. Thus, while it is comforting to know that all our lakes are either oligotrophic or mesotrophic, we need to know how quickly this might be changing and explore whether there are any actions we can take to either return the lakes to or maintain their natural trajectories. In order to find the answers to these questions, we will continue our Secchi monitoring program in years to come.

We are also beginning to expand the program to gather more kinds of information about the lakes in the hopes of finding some answers sooner rather than later. The University of California-Davis (with help from volunteer Dennis Rolston) has donated some preliminary water chemistry analysis. Before Dennis headed back to California this fall, we collected 24 water samples from our lakes and sent them with him. Those samples have now been analyzed, and we are in the process of summarizing the results.

In addition, with support from the Seeley Lake Community Foundation, CRC purchased a dissolved oxygen meter for use in our monitoring program. This equipment will enable us to measure more parameters of lake water quality and will thus give us a better understanding of the overall condition of our lakes.

Finally, we are partnering with the University of Montana's Environmental Studies program to perform an in-depth analysis of trends in lake trophic status, current water quality, and potential loading sources of the Clearwater lakes. The analysis will bring together all known data pertaining to our lakes and synthesize it in order to paint as complete a picture as possible of past and current lake conditions.

None of these efforts would be possible or successful without the help of the community. In particular, we would like to thank the Seeley Lake Community Foundation for funding this program, Pitman Machining and Rovero's for helping to reduce our equipment costs, Dennis Rolson and UC-Davis for the donation of water sample analysis, the Flathead Biological Station and Joann Wallenburn for assisting us with data management, the University of Montana Environmental Studies program for performing an in-depth lake analysis, the Montana Department of Fish, Wildlife, and Parks for equipment and materials donation, and, last but not least, our 25 amazing volunteer monitors: Tom and Brenda Beers, Lois and Louis Bellusci, Tom Joehler, Patsy Vargo and Don Joyner, Toby Bedard, Ron and Nancy Michaelson, Nancy Winslow, Sherry and Clyde Sterling, Jeff and Cathy Harrits, Brad Talcott, Don Bissell, Dennis Rolston, Patricia Bouta and Guido Niederoest, Will and Jean Dickey, Al Rogers, and Laurie Page.

For more information about our lake monitoring efforts, please call Megan at 677-0069.

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