

"Adopt-a-Lake" Program Fills in Gaps and Educates the Community

By Megan Birzell and Bruce Rieman

If you had to pick one picture that captured the beauty and feeling of living in the Clearwater Valley, what would it be? There's a good chance it would have mountains in the background - and for many there would be a crystal clear river or lake in the foreground.

What is it about clear water that captures our imagination? Why do we want to be close to it? Why does "lake front" or "river front" or "water view" make our property so much more valuable? Why do we name our places after an image of that water? We're not sure, and those are probably good questions for an anthropologist or Steve Lamar. It is clear, however, that lakes and rivers are central to our quality of life in the Clearwater, Swan, and Blackfoot valleys, and to our livelihood, through recreation, tourism, summer homes, real estate values, and even our health and basic needs as water supplies.

The experience of people living on lakes and rivers around the world also shows that the value and beauty of these waters depends on water quality: how clean it is and whether it's free of contaminants and pathogens that might harm us if we drink it or swim in it or eat fish that grew in it. But, as much as anything, it also depends on how clear it is. A recent article in High Country News talks about the declining water clarity of Lake Tahoe, long famed for its beautiful blue water. Now, the local residents, businesses, and the states of California and Nevada are spending hundreds of millions of dollars to try to restore its past condition.

The Clearwater Resource Council (CRC) and some citizens living on lakes in the Clearwater Valley are concerned about the quality of our lakes as well. In response, we are initiating the "Adopt-a-Lake" monitoring program to educate ourselves, track our lakes, and learn more about how we can keep them clear and the water quality high.

So what makes for high water quality and clear blue water? One key factor is the "productivity," or the amount of plant growth that the lake supports. Plants are the base of the food chain in lakes and basically take two forms: rooted aquatic plants, which grow along the shoreline or in relatively shallow water, and "algae," which are often microscopic in size and grow as free floating individual cells or colonies of cells in the water column or on rocks in shallow water. The more plant growth, particularly of the algae in open water, the more turbid, and, often, the more green or brown the color of the water will be.

The productivity depends on a variety of things, but some of the most important are the amount of nutrients and water flowing into the lake, the depth and shape of the lake, and the amount of sediment coming into the lake from the watershed. Nutrients are essentially fertilizers, mostly different forms of nitrogen and phosphorous, like that used on farm fields or own lawns. More nutrients equal more plant growth. Depth and shape matters because nutrients tend to be stored in deep water or sediments, and it's harder to recycle them up near the surface where most of the plant growth occurs. Deeper lakes tend to have less plant growth. Higher water flow through a lake means there is less time for plant growth or use of the available nutrients. More flow equals less plant growth. Sediment from erosion in the watershed is important because more sediment means the lake may begin to fill in and become shallower, often near the mouth or around the shoreline first. Sediments also carry additional nutrients. There are other factors as well, but these are commonly important ones for lakes like ours.

Lakes change in productivity (and quality) through time. This is a natural process, but generally it is very slow, taking thousands to hundreds of thousands of years depending on the size of a lake and all the factors influencing it. The problem is that human activities in the watershed can greatly accelerate this process. Some common causes can be adding more and more homes without adequate sewage treatment, not addressing failing septic systems or installing them in inappropriate places, increasing erosion in the watershed with roads and heavy logging, using more and more water, and applying too much fertilizer to our lawns or fields. Lakes like Tahoe have declined dramatically in water clarity in a matter of 20 or 30 years. Lake Tahoe won't likely become very green or face problems with nuisance algae blooms any time soon, but the changes have been so dramatic that people are clearly worried. Communities around smaller lakes around the world have experienced more serious problems as they've grown and developed. The changes can lead to reduced clarity and aesthetic values, increased nuisance algae (green mats in bays and windrowing on the shoreline), and even decreasing fisheries. Fortunately these problems can be reversed, particularly if they're recognized early on.

Of course, in order to know whether our lakes are changing at an accelerated pace, we have to have a baseline of information about them. Currently, relatively little is known about the status of the lakes in the Clearwater Valley. There have been various studies done on some of the lakes over the past 30 or 40 years, but many of these studies focused on different aspects of the lake, and so it's hard to compare them. The state and federal agencies that typically worry about these problems have limited time, staff and funding, so new work is slow to happen.

The CRC is trying to remedy this problem through our "Adopt-a-Lake" monitoring program, but we need more help. We are using volunteers to collect simple water clarity and temperature data at one point on Seeley Lake, and several points on Lake Inez. We need more help to monitor other points and other lakes in the valley that volunteers are interested in. Volunteers generally collect data twice per month from May through October each year and submit their data to CRC. The CRC will record, summarize, and analyze the data and will make the findings available to the agencies that can use the information as well as to all interested community members and community boards.

This program is just getting underway this year, and the first full season of data collection will be in 2009. If you have access to a lake and a boat and are willing to help CRC gather information about lakes in the Clearwater Valley, or if you would simply like more information, please contact Megan Birzell at 677-0069 or megan@crcmt.org or visit CRC's website at www.crcmt.org

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