VAN VLIET LAKE ASSOCIATION

2009 Declining Inland Level Lakes

The Upper Midwest is experiencing an extended period of drought but don't tell that to the thousands of people who have been significantly affected by flooding in the last several years. It seems the drought is more related to elevation than to general location. If you live in an area that is less than 1000' above sea level you may be experiencing a lot of moisture and a higher water table. If you live in an area that approaches 2000' above sea level (read North Central WI and other elevated State locations) you are probably experiencing a quite different situation. In addition to declining lake and river levels in North Central WI, a profoundly diminished overall water table looms large for current and future water users in the area. This is the crux of the problem.

If we could lay the blame on the weather forecasters for the lack of rain or snow, assuming somehow they would accept responsibility, we could quietly go about grumbling and complaining and, of course, nothing would be accomplished. But, as is often the case, the real issues here are global climate change and a blind eye to indiscriminate resource use.

A recent presentation by noted key speakers took place at the Northland Pines High School in Eagle River, WI and looked at these issues in depth. Buzz Sorge, Lake Management Planner for the DNR West Central Region, Susan Knight, UW Aquatic Biologist for the Trout Lake Limnology DNR Office and Tim Asplund, Statewide Limnologist for the WDNR Lakes and Wetland Section all made presentations on the issues of:

1) What sort of changes declining lake levels trigger including habitat change and

2) The implications of climate change with respect to declining inland lake levels

One of the most compelling issues of reviewing statistical data recapping time periods from 30 to 70 years ago which look at North Central WI precipitation levels, wet and dry periods and even the water table of the Eagle River community well (which is at an all-time low), is the fact that although the spikes of the pictorial graphs show nearly equal returns from dry and wet sequences of time, the land's overall water retention has declined. If you accept the explanation that annual rainfall and snowfall is pretty much balanced out by the process of moisture transfer from water bodies to the air through evaporation then the only other possibility for lake level decline is the ever declining water table, underground water level, the aquifer, whatever terminology you're comfortable with. So why is this occurring? In the past when we did return to a wetter cycle the water table increased but it never returned to its original place. Over all water levels continue to decline and warmer winters, sooner ice out, later ice in and warmer summer weather (despite local differences currently being experienced) continues to tax the water replacement cycle. The human impact of increased population in North Central WI leading to more private wells tapping into the various aquifers also factors into the equation. How could it not?

The implications of declining lake levels is first and most apparent in more exposed shorelines. Critical here is the natural response to clean out formerly submerged wood to make the shoreline more attractive

Words to the wise. Leave it. Wood removal has been established as the leading cause of fish habitat decline since it supports so much invertebrate life for forage and reproduction cycles. Second is the obvious loss of water habitat for fish movement and the associated problems with a diminished overall habitat. Finally, and just as important to water recreationists, there is the loss of access and mobility for watercraft. Low water levels can cause or increase the likelihood of:

- Algal blooms especially if the water body is already experiencing over fertilization
- Invasive species dominance
- Greater winter fish kills due to depleted dissolved oxygen in the water
- Loss of water clarity
- Loss of recreational use

Given the fact that less than 1% of all water on earth is of the fresh water category and only .009% is contained in inland lakes, what this State has in terms of precious, perhaps not overstating the case, rare resources need to be looked at in a new light. 90% of the life found in a fresh water body lives or is dependent on the littoral zone, that portion of the water body that supports aquatic plant production and is generally accepted to be a depth less than 30' or that depth to which sunlight can easily penetrate. It is also the area where most of the zooplankton is found, a major dietary requirement for small fry. Overall declining water levels have the greatest impact on fish reproduction. So the importance of leaving branchy fallen wood on your shoreline is important as research has shown a threefold increase in fish population and growth in woody habitat with the corollary of wood removal immediately effecting perch population declines and a change in bass forage to terrestrial nutrition. Recent studies have also overwhelmingly concluded that developed shorelines and lawns especially discharge 7-10 times more phosphorus runoff to water bodies than adjacent woodlands.

Over all moisture levels for the long-term show a 50-year decline, perhaps a 15%-20% drop in elevated areas of the State. How we as landowners and shoreline users have impact is by recognizing the effect we and other users inflict. Of particular concern for shallow water areas are the boat wave characteristics that we cause under heavy acceleration to get the hull up on plane. High speed near shore takeoffs are the most egregious forms of shoreline mistreatment as a result of bottom disruption and natural aquatic plant damage. Stronger no-wake zone regulations need to be enacted, observed and enforced.

It's all not so unlikely. We have been in the process of "lovin' this area to death" for over a half century and don't forget it was heavily logged a little over a century ago, the habitat effects of which went essentially undocumented. It would be difficult to believe that extensive logging operations did not inevitably trigger some significant microclimate and ecosystem changes. As population relocation increases the number of residents in North Central WI the situation isn't going to self-correct. It's here. The key is to focus on the unique water resource and to become committed to protecting it.

In conclusion it would seem that there are two schools of thought on the environmental issues. There are resources-land, water and air that provide us with tangible and intangible benefits but it is when we treat these resources like commodities it becomes difficult to refocus on the common sense limitations of the resource itself. True commodities are bought, sold and traded but resources aren't found in stock market listings and try as we might to extract every last drop of resource available, and many are trying, we don't have the ability to crank up the assembly line, here or in China, and make some more.

Reported by Jeff Burke at the 2009 annual meeting