Ordinary High Water Mark Determinations

The Ordinary High Water Mark (OHWM) has a long history in Wisconsin Water law. Probably the most famous case defining the OHWM was Diana Shooting Club v. Husting in 1914. The definition used in Diana Shooting Club v. Husting is still the definition of the OHWM used today and was recently codified in State of Wisconsin Administrative code as, "...the point on the banks or shore up to which the presence and action of water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognizable characteristics." The significance of the OHWM is that it defines the demarcation point between public trust land and private property. Essentially the state claims public interest in all land below the OHWM elevation. In Wisconsin, the state actually owns title to natural lakebeds and asserts a qualified interest in streambeds and those portions of the beds of natural lakes raised above their original levels.

In regulation of dams, the OHWM is important because a change in operation or water levels that affects the OHWM could result in a change in property from public to private or vise versa. In September and October of 2001 the Lake District and the Department surveyed several OHWMs around Lake Koshkonong. The details of that survey can be found in a report by RSV Engineering dated November 18, 2002 and titled ***Ordinary High Water Mark Study Lake Koshkonong Jefferson County, Wisconsin.***

Figure 14 shows the location of those OHWM determination and Table 3 shows the result of that survey. The Montgomery report assumed OHWM based upon Table 3 of 778.11 MSL. The Department's order 3-SD- 82-809 referred to an OHWM of 776.7 MSL, a difference of 1.41 feet. It is difficult to explain this large difference. The most likely explanation is that the lake now reaches higher levels more often than it did in 1979 when the original OHWM work was done. This simple supposition is supported by the fact that the wicket gates have not been in a state of good repair and would have significantly reduced the capacity of the dam to pass flows, resulting in more fluctuation of the Lake. The Montgomery study had to assume a reduced area of the wicket gates in order to achieve calibration of their model. While the actual opening of the turbine area is about 150 square feet. Montgomery used a reduced area of 53.6 feet to achieve calibration. This reduced flow wicket area could in part explain more pool fluctuation and a higher OHWM. A review of past water levels before the 1979 OHWM and the 2001 OHWM seem to indicate that the water levels have increased to a point were the OHWM could have been influenced (Figure 15). Of particular interest is the mode of the distribution for the spring period. The mode of course is the most frequently appearing point in any distribution. The mode of the water level distribution leading up to the 1979 OHWM and again leading up to the 2001 OHWM falls almost exactly on the OWHM. While the overall mean of the spring distribution did not change, the mean of the summer, fall and winter water level distributions have all increased by 0.7 feet, 0.17 and 0.32 feet respectively.

There are several likely explanations for the apparent rise in water levels between the two series discussed above; First, there is simply more runoff flowing into the lake in the last twenty years. A review of Attachment 5 in part supports this explanation since the trend line for water levels has increased 1.5 feet over the course of the monitored water levels at Fort Atkinson; Second, a lack of operation of the spillway gates including lack of maintenance of the trash racks and wicket gates has resulted in higher water levels; Third, implementation of the last water level order (3-SD-82-809) has resulted in raising the water levels; Fourth, a combination of all of the above has resulted in higher water levels and a higher OHWM.

Another possibility is that the 1979 OHWM was simply wrong. In any event the Department concurs with the RSV report and for the purposes of this analysis will use an OHWM of 778.11 MSL.