Establishing 2010 Flows and Loads

Flow data for significant point source facilities have been collected and reported to the Bay program for many years. Hydrologic data have also been collected and reported since 1985. The hydrologic data are used in the model along with monitoring data to maintain and refine the calibration of the model. These data are also used to define a "normal" year.

Each year (since 1985), the Bay model evaluates improvement using a "progress run". The progress run applies county population projections, based upon 2000 census data, to project increases in flows from the point sources within the watershed. DEP provides actual flows to the Bay program modelers as a further verification of these projections.

Based upon hydrologic data, the year 2000 was determined to be a "normal year". Therefore, the modelers used 2000 as a reference year. Population projections for each point source were then applied, using the reference year and the county projections from the census, resulting in the initial 2010 flows. Incremental year projections for every year between 2000 and 2010 were also estimated.

Individual system flow projections based on county population projections were a cause of concern to DEP. In most cases, growth within areas with public services outpaces that in rural areas without such services. It seemed unrealistic that a county population projection would accurately reflect the actual flow projections for these systems.

Therefore, DEP determined that there was a need to "ground truth" (find out what is really taking place on the ground), as best as possible, these projections. Our staff was instructed as follows:

1. Thoroughly examine the Wasteload Management (Chapter 94) reports for 2000 – 2004 and the projections contained therein. These reports must provide the maximum monthly average daily flow projections through 2009. They should also at least contain data that can be used to calculate the annual average daily flow projections for 2009. Care must be taken when reviewing these data. The Tributary Strategy is based upon an annual cap load. Consider the projection of the annual average daily flows, not the monthly averages. Further, the years 2003 and 2004 were extremely wet years and any five year projections that do not include a regression analysis back to at least 2000 may result in anomalously high 2010 flow projections. The method for verifying that the flow projections are appropriate is a plot (or comparison) of the actual, reported annual average flows for 2001, 2002, and 2003 against the wasteload management projection through 2009. The year 2000 is the base year. Any projection line must pass through the point that represents the actual annual average flow for that year.

2. Once an accurate projection through 2009 is determined the projection line or curve must be extended to 2010. The value at the 2010 intercept is the 2010 base flow for permitting.

3. For the areas where populations are decreasing and the projections go down, at the very least, the flow will be held steady.

4. For significant dischargers whose projected 2010 flows are less than 0.4 mgd, cap loads were estimated using the equivalent load resulting from a discharge of 0.4 mgd and a nutrient concentrations of 8 mg/l TN and 1 mg/l TP, respectively.