

corridor, and synoptic surveys. These supporting documents provide a more detailed assessment of the Deer Creek Watershed and are located at <http://dnr.maryland.gov/watersheds/surf/proj/wras.html>. More information about the WRAS process is available at <http://dnr.maryland.gov/watersheds/WRAS/>.

### SUSQUEHANNA RIVER MAINSTEM

The Susquehanna River Mainstem sites were analyzed separately from other Lower Susquehanna Subbasin sites due to their large drainage size and different nature. SUSQ 77.0 served as a reference site for the Susquehanna River Mainstem sites. All the sites on the mainstem Susquehanna River had fairly similar biological conditions except for SUSQ 122.0, which was rated slightly impaired. Ironically, this was the only site to receive a “higher” water quality rating. This was most likely due to dilution or a one-time sample that was not representative of usual conditions. SUSQ 122.0 was located downstream of Sunbury, Pa., which is where the West Branch Susquehanna River and the North Branch Susquehanna River join to form the main stem. The next two sites downstream, SUSQ 106.0 and SUSQ 94.0, received “lower” water quality ratings mostly due to elevated specific conductivity. This elevated conductivity may be due to the influence of the AMD-impacted streams that flow into the Susquehanna from the east. The site farther downstream, SUSQ 77.0, was downstream of the high quality streams, such as Powell, Clark, Stony, and Sherman Creeks. Slightly elevated total nitrogen and sodium were the reason for the “middle” water quality rating. SUSQ 44.5 also was rated as “middle” quality with slightly elevated total nitrogen, sodium, and temperature. This site was an Interstate Streams Monitoring site and had received nonimpaired and slightly impaired ratings throughout the past couple years, although no sample was collected in 2003 (Hoffman and Sitlinger, 2005).

### COMPARISON of 1996 and 2005 DATA

A comparison of historical Lower Susquehanna Subbasin data from 1996 and the current survey data from 2005 indicated overall similarity with some slight changes in biological and water quality conditions. Biological conditions seemed to be slightly better in 2005, while water quality appeared to improve in some parameters but degrade in others. The results for water quality, biological, and habitat conditions in the 1996 Lower Susquehanna Subbasin Survey are depicted in Figure 5. Two sites, CEDR 0.1 and CHIQ 20.0, were added to the survey in 2005 and are in blue print in the Appendix, since these sites were not included in the historical data. The methods have changed slightly throughout the years, and the methods for the 1996 survey can be found in

Traver (1997). Specifically, the number of macroinvertebrates subsampled changed from 100 to 200, the habitat assessment form changed to assigning each parameter 20 points instead of weighting the parameters with different point ranges, and the water quality assessment analysis has changed. In the 1997 report, Traver assessed water quality using Principal Components Analysis and cluster analysis and did not assign rating categories for site conditions. For comparison purposes, the 1996 data were analyzed using current methodology to acquire water quality site condition ratings. In addition, the reference categories have changed due to advances in Geographic Information Systems technology and calculation of drainage size. MNTN 3.0 was the only site in Ecoregion 66, so this site was grouped with 67cd.

Figure 5. Water Quality, Biological, and Habitat Conditions in 1996 Sample Sites in the Lower Susquehanna Subbasin

