

Sediment Toxicity Testing

Sediment toxicity testing is performed to estimate the toxicity of sediments at sites determined to be environmentally degraded based on bioassessments of stream macroinvertebrate populations as part of the statewide Ambient Biomonitoring Network (AMNET). This is accomplished through the bioassay (toxicity testing) of sediments using the amphipod *Hyaella azteca* as the test organism. The toxicity testing measures both acute and chronic effect endpoints, the acute endpoints measuring survival and the chronic endpoints measuring growth and fecundity.

Test sites are selected from those assessed as "severely impaired" or that have shown a significant decline, based on AMNET results. Reference sites are selected from AMNET stations that are rated "non-impaired" and located within the same major water basin as the respective monitoring sites(s). AMNET routinely surveys a total of over 800 sites statewide, employing the Rapid Bioassessment Protocols developed by USEPA. AMNET sites are rated as *non-impaired*, *moderately impaired*, or *severely impaired* based on a multi-metric evaluation of the benthic macroinvertebrate species assemblages.

Toxicity is assessed by statistically comparing the monitoring station with the reference station results for significant differences. The data are used in watershed assessments, evaluation of toxic spills into ambient waters, in the Department's *Integrated Water Quality Monitoring and Assessment Report* (305(b) water quality inventory and 303(d) impaired waterbodies list), and will be used in its stressor identification (SI) work. Results from previous applications of this testing may be found on the Bureau of Freshwater & Biological Monitoring's webpage (www.state.nj.us/dep/wmm/bfbm/publications.html).