2009

Mentum Deformation of Chironomidae Subfamilies, Funtional Feeding, Guilds, and Habitat Guilds within the Cheyenne River Basin, South Dakota

Andrew Kopp
South Dakota State University

Nels H. Troelstrup Jr.
South Dakota State University, nels.troelstrup@sdstate.edu

MENTUM DEFORMATION OF CHIRONOMIDAE SUBFAMILIES, FUNCTIONAL FEEDING GUILDS, AND HABIT GUILDS WITHIN THE CHEYENNE RIVER BASIN, SOUTH DAKOTA

Andrew Kopp and Nels H. Troelstrup Jr.
Department of Biology and Microbiology
South Dakota State University
Brookings, SD, 57007

ABSTRACT

Toxic score is a tool devised by Lenat (1993 Journal of the North American Benthological Society 12:265-269). Using mentum deformities of *Chironomus* larvae to evaluate the effects of toxicity and organic loading in streams. It uses mentum deformities within *Chironomus* to score a site for toxicity. Slight (Class 1), conspicuous (Class 2) and severe (Class 3) deformities are enumerated and used to generate the toxic score for each site. The purpose of this study was to document frequencies of deformities across Chironomidae subfamilies, functional feeding guilds, and habit guilds. Macroinvertebrate samples were collected from the Cheyenne River Basin 10 times from five sites following EPA EMAP protocols during the summers of 2007 and 2008. Individuals were slide mounted, identified to genus, and examined for mentum deformities. Out of 1399 individuals examined, 5% had Class 1 deformities, 0.93 % had Class 2 deformities, and 0.29% had Class 3 deformities. Chironominae were most frequently afflicted with Class 1 deformities (6.57%) and Tanypodinae were most frequently afflicted with Class 2 (2.63%) and Class 3 (0.38%) deformities. Collector gatherers were most frequently afflicted with Class 1 deformities (7.41%) and Class 3 deformities (0.38%). Engulfers were most frequently afflicted with Class 2 deformities (2.35%). Burrowers were most frequently afflicted with Class 1 deformities (7.64 %) and Class 3 deformities (0.4%). Sprawlers were most frequently afflicted with Class 2 deformities (2.3%). Based on previous literature our results suggest that the Chironomidae communities of these streams are minimally stressed by toxic contaminants.