Environmental Sciences and Engineering

Preliminary Study of the Beaverhead River and the Effects of the Dillon Community: Biology [MAS]

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Aquatic macroinvertebrate diversity and abundance are often used as a barometer of the health of riparian ecosystems. Aquatic macroinvertebrate counts, in conjunction with chemical analyses of specific stream reaches, may be useful harbingers of stream degradation. Sixty-two students from the 100 level biology class at WMC-UM participated in the field collection and in the laboratory identification of aquatic macroinvertebrates (to Order) sampled from four stations along the Beaverhead River in southwestern Montana. Stations were approximately 20 feet in length and located within the low water marks in areas with riffles and cobbles. Students collected 3 replicate samples of macroinvertebrates, with a surber stream bottom sampler, within each of the four river stations in January and again in February of 1997. Histograms were plotted to allow comparison of the distribution of invertebrate Orders within and across each of the four river sites. Two species

richness indices, the number of species in a defined sampling unit (S) and Margalef's index (Dmg) and one proportional species abundance index, Simpson's (D) were calculated for each of the four river sites for both January and February. S and Dmg show relatively little change across all four river sites while D indicates a loss of diversity and a shift in species dominance/ evenness characteristics at our most downstream site (below a sewage treatment plant). At this site, aquatic nematodes (Nematoda) are 6 times more abundant than any other aquatic invertebrate Order.