DISTURBANCE is a dominant force in shaping stream macroinvertebrate communities and recovery requires the presence of refugia. In the Missouri Ozarks, spring-fed tributaries are possible refugia. To determine if spring-fed tributaries serve as thermal refugia, submergent bidirectional movement was measured from spring-fed and surface-fed confluences in the Current River, Missouri during winter and summer. Macroinvertebrate communities in summer significantly differed and formed three groups: surface-fed tributaries, Current River main channel, and spring-fed tributaries as supported by nonparametric analyses. Spring-fed tributary macroinvertebrate communities were distinct, which suggests these tributaries are unlikely thermal refugia for macroinvertebrates. Because greatest community differences existed between tributary types, mesohabitats were investigated. Mesohabitats differed in community composition and taxonomic richness within functional feeding groups with marginal vegetation having high taxonomic richness. Chironomidae among mesohabitats were analyzed because of their high diversity and density in streams. Inclusion of chironomids in analyses did not alter bioassessment metrics although chironomids alone were able to differentiate among mesohabitats. Further work with Chironomidae at the species level could improve environmental assessment and interpretation. The mesohabitat scale was able to differentiate among macroinvertebrate communities and should be further investigated in the Ozarks.