

# ENHANCING AQUATIC MACROINVERTEBRATE COMMUNITIES THROUGH GEOMORPHIC STREAM RESTORATION

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Stream restoration has become a valuable tool in the field of conservation. The majority of stream restoration that occurs in Georgia is done through the commercial mitigation banking process regulated by the US Army Corps of Engineers. Much of the focus of these restoration activities has been on creating channels with stable patterns, profiles, and dimensions. Very little focus is placed on creating biological habitat necessary for creating, in many instances, the proposed macroinvertebrate community lift. The purpose of this study was to determine what relationships existed between geomorphic variables and macroinvertebrate communities in order to incorporate a greater level of biological habitat creation in natural channel design methodology. The primary study was conducted in north Georgia along 12 stream reaches. A host of geomorphic variables were collected along each stream reach. Additionally, macroinvertebrate community samples were collected along these reaches using Georgia Department of Natural Resources, Environmental Protection Division methodology. Based on the results of this study, shear stress, shear velocity, and riffle D50 have a strong correlation with macroinvertebrate abundance. The incorporation of geomorphic parameters suitable for increased macroinvertebrate abundance. The incorporation of geomorphic parameters suitable for increased macroinvertebrate abundance may decrease the primary performance standard of the overall level of physical stability in the channel, but would lead to an overall higher level of ecological restoration. Preliminary results of a more contemporary study conducted within the Ochlockonee Basin have shown that based on the GA EPD biotic indices, that baseflow conditions, and therefore certain geomorphic variable, may influence macroinvertebrate community structure. When taken in conjunction with the study above, this shows that future stream restoration projects must take into limiting factors of achievable macroinvertebrate community lift and that geomorphic variables effects on the communities are most likely highly dependent on ecoregion scale factors.

*Program reference: 6.8.4*