



Aquatic Community Changes in a River Basin

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Hydrological features and benthic habitat characteristics are commonly different in streams of different order, accordingly, different benthic macroinvertebrate community may conform. Field investigation and experiments were conducted to learn the relation between benthic macroinvertebrate community and stream order in the Xizhijiang River basin, a tributary of the East River in South China. According to Horton and Strahler's stream ordering method (Horton, 1945; Strahler, 1957), the Xizhijiang River is a fifth-order stream with a length of 176 kilometer and drainage area of 4120 square kilometer. There are 367 first-order streams, 87 second-order streams, 15 third-order streams, 4 fourth-order streams, and one fifth-order stream in the Xizhijiang River basin. Totally, 15 sampling sites were selected from the river basin, 4 sites were from the first-order streams, 4 sites were from the second-order streams, 3 sites were from the third-order streams, 2 sites were from the fourth-order streams, and 2 sites were from the main channel of the Xizhijiang River. Macroinvertebrates were sampled with kick net and a specially designed mud grab at each sampling site, meanwhile, hydrological factors including, flow-rate, water depth, flow velocity, stream substrate composition, energy grade, dissolved oxygen, and riparian situation, etc. were measured and investigated. Basing on the hydrological factors data, habitat diversity index of each sampling site was estimated. Macroinvertebrate samples were taken back to laboratory and identified to family level. Macroinvertebrate biodiversity indices, such as taxa richness, Shannon-Weiner index, Pielou's evenness index were evaluated. Through component of faunal abundance to check the connection of ranked order streams is attempted to discuss. In addition, every surveyed reach of the stream is close to natural channel and avoided the serious pollution in that stream. The water quality, in turn, is similar in those streams.

Keywords: aquatic community, stream order, macroinvertebrate, biodiversity.