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Microalgae are key components of many aquatic food webs and of aquatic biodiversity, yet little is known of the dynamics of algal assemblages in tropical systems, where diversity is likely to be very high. This study investigated algal assemblages of remnant riparian water holes in the seasonal Australian tropics, and the natural and human influences on them. Phytoplankton and water samples and *in situ* physico-chemical data were collected from sites in the Burdekin River catchment, one of the largest in tropical Australia. Sites in the catchment were chosen based on differing water chemistry and turbidity. Samples were collected at three times during the day (dawn, midday, afternoon) in two microhabitats within the waterhole (open water and macrophytes) at varying times within the year representing the wet and dry seasons and the change between seasons. Multivariate analyses demonstrated compositional differences between assemblages between seasons and rivers and showed that conductivity and turbidity were major physico-chemical determinants of the differences. Majority of the sites showed dominance in Chlorophyta, followed by Cyanophyta and Heterokontophyta (Bacillariophyceae). The differences related both to natural geological and edaphic factors and to land management regimes in the catchment. The results provide improved understanding of algal dynamics in seasonal tropical rivers and will be used to create models for site-specific assessment of water quality in a regional monitoring program.

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ALGAL DYNAMICS IN TROPICAL RIVERINE WATER HOLES

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