

Land use and water quality trends of the Fitzroy River, Australia

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Abstract Analysis of long-term trends in water quality indicators is critical to an understanding of the cause and effect of environmental change for resources management. The Fitzroy Basin is the second largest catchment in Australia, and one of the largest sources of freshwater and sediment for the Great Barrier Reef (GBR) lagoon. The basin was largely undisturbed prior to the 1960s. At present, about 90% of the basin has been cleared for grazing, cropping, and sown pasture. The paper shows that in spite of the large-scale, rapid land clearing, and an increase in sediment concentration at a given discharge, there are no significant trends in mean annual sediment concentration nor in the sediment discharge into the GBR lagoon. Three factors are identified to have contributed to this: (a) declining rainfall in parts of the basin since the 1970s; (b) high inter-annual variability; and (c) the unpredictable nature of where runoff-generating events occur for large river basins.

Key words land clearing; land use; sediment discharge; water quality trend; Fitzroy, Australia